FLORIDA WILDLIFE®

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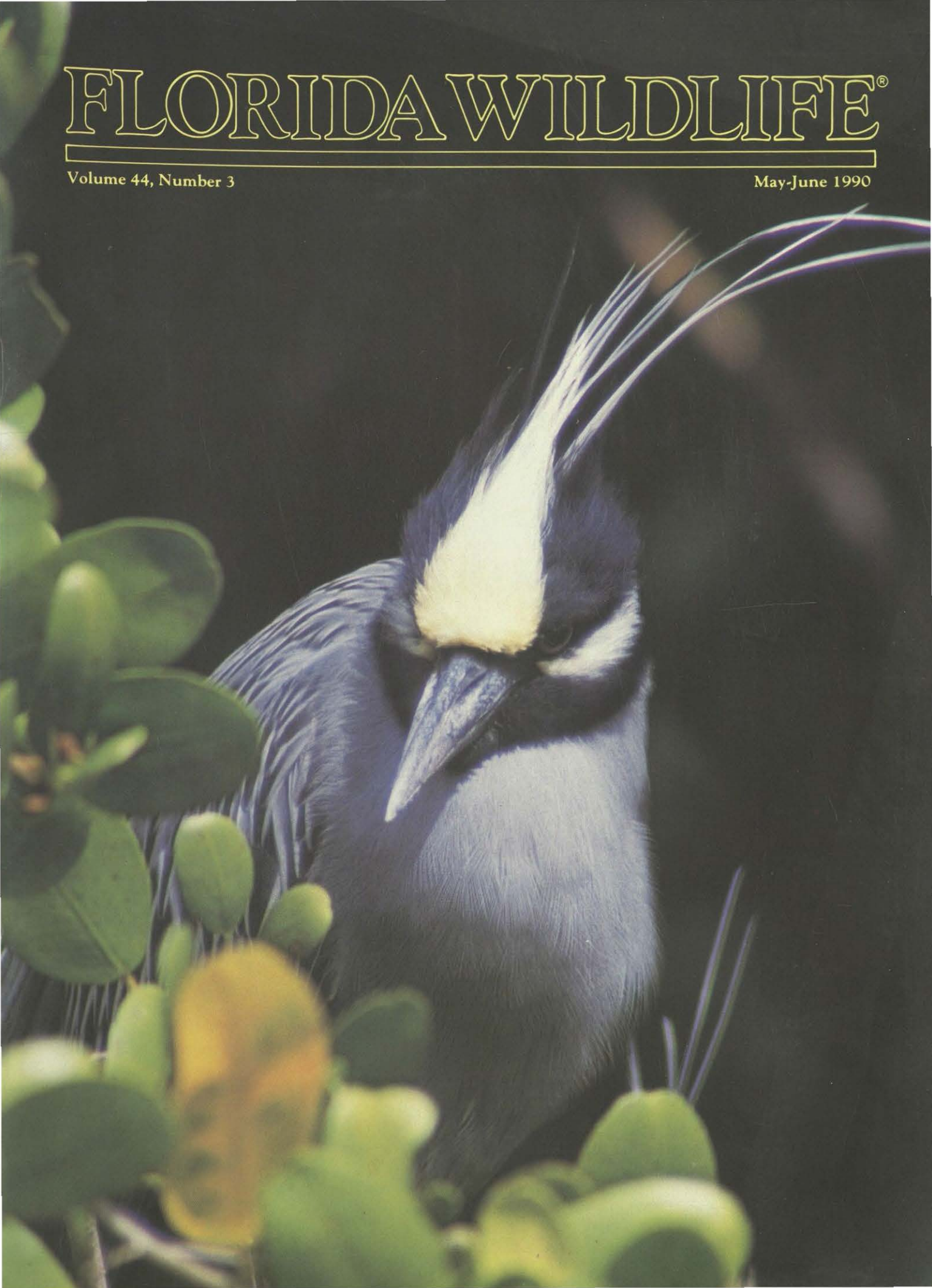

NATIONAL FISHING WEEK

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JUNE 4-10

FISHIN' & FRIENDS

It's Catching On

FLORIDA WILDLIFE®

Volume 44, Number 3 May-June 1990

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Publisher

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Contents

2 **The Martin House,** By Melinda Barnes
5 **Fighting the Challenging Gar,** By Max Hunn
10 **St. Marks Refuge,** By Michael Wisenbaker
15 **Zooming In On Attic Dwellers,** By Jane T. Adams
19 **The Case of the Two-Quail Rattlesnake,** By D. Bruce Means
21 **1990-91 Waterfowl and Turkey Stamp Winners**
23 **Wildlife Artist: David Bollman**
26 **Professional Fisherman: Jim Bitter,** By Tim Tucker
30 **Trolling Lipless Crankbaits For Big Bass,** By Bob McNally
35 **Urban Fishing,** By Mark Trainor and Dylan Jones
38 **Water Quality for Sport Fisheries,** By Homer Royals and Brad Cook
40 **In Pursuit of Stormwater,** By Georgann Penson
41 **Make 1990 "The Year of Boating Safety,"** By Mary M. Davis
43 **Wildlife Reservists — Volunteers For Conservation,** By Scott Ball

Departments

8 **Hunter Education,** By Captain Ed Tyer
9 **Delicate Balance: Gopher Frog,** By Paul E. Moler
45 **It's the Law,** By Inspector Kyle Hill
46 **Conservation Update**

Our Covers

Charlie Heidecker photographed the striking yellow-crowned night heron on our front cover. Jim Cox describes this distinctive "violet night queen" in the Floridana column on the inside back cover. When a southern toad vocalized, photographer William Weber captured the courtship for our back cover.

The Martin House

By Melinda Barnes

Sixteen years ago my dad build a red and white barn 15 feet in the air.

My family has a weekend retreat in Lake Placid. What started out as a small mobile home was transformed by my father into a very cozy two-bedroom cottage.

Amidst the construction, my grandmother mail-ordered plans for a purple martin birdhouse. Very logical actually — she loves bird watching, so wishing to attract them came naturally. Some folks say that purple martins (*Progne subis*) eat mosquitoes. Lake Placid, being in the heart of central Florida's lake country, is blessed with an abundance of mosquitoes. Therefore: one birdhouse plus mosquitoes equals many birds to watch.

Gram declared, "I'm perfectly capable of building it myself. I do have a way with carpentry, you know." But Dad wouldn't hear of it. So, before long, there arrived the grandest of martin homes — it was white, barn-style with a red roof and red-trimmed "doors." The lodgings for eight families included north-south exposure with attic entrances. The roof was hinged for repair and cleaning access. 'Twas a sight to behold as no finer accommodations could be seen in Highlands County. Even the interior was painted antique white.

It wasn't enough that a creosote utility pole be moved from one 3-foot-deep hole to another. The half-inch plywood house had to be raised atop manually. This, Dad did with the help of telephone company climbing spikes and rope. Then, he precariously raised the 30-pound structure overhead. At one point the house got away from Dad, nearly pulling him from the pole. The spikes slipped. Spread-eagle, he crashed against the pole, yelling obscenities in a soprano voice. Thankfully, he was saved by the belt.

There, at last, for all the world to rejoice over, wonder at, and admire, stood the most beautiful martin house, complete with its hinged roof.

That was 16 years ago. Today the martin house still towers over the yard. The wild hickories shade it from the harsh summer sun. In the fall, leaves carpet the ground beneath.

Oh yes, the martins came — and ate mosquitoes, I guess. I sure couldn't swear to it with a few thousand skeeters buzzing around. And when the martins moved on, sparrows arrived, then squirrels, and then martins again with their peculiar gurgling song. It was an annual event and each tenant came with its own ideas of what the perfect home should be. The sparrows packed it up with grass and twigs for their cheeping chicks. Once their lease ran out, a gray squirrel family took residence. They made improvements by clearing out the sparrows' discarded furnishings. They fancied themselves carpenters. You could hear them gnawing at the entrances, enlarging and reshaping. Then, tragedy struck the pair of young squirrels, as one took a fatal fall one night, leaving a lonely male gray. I think he finally moved down the street to a more social singles residence.

For several months the martin house stood empty until the final insult arrived — wasps. Surely this was the end. Could demolition be far behind? "No way are you getting me up there to clean that thing, hinged roof or not," my husband protested bullishly.

But with the advent of cold weather, even the wasps disappeared.

Neighborhood residents come and go. Last spring, the sparrows returned to the first floor with the usual clutter and endless chattering. Having been led to believe that martins were strict segregationists, I was surprised to see them once again, soaring above the red roof. But, then they perched lightly on the second level; their winter stay in Brazil at an end — home again.

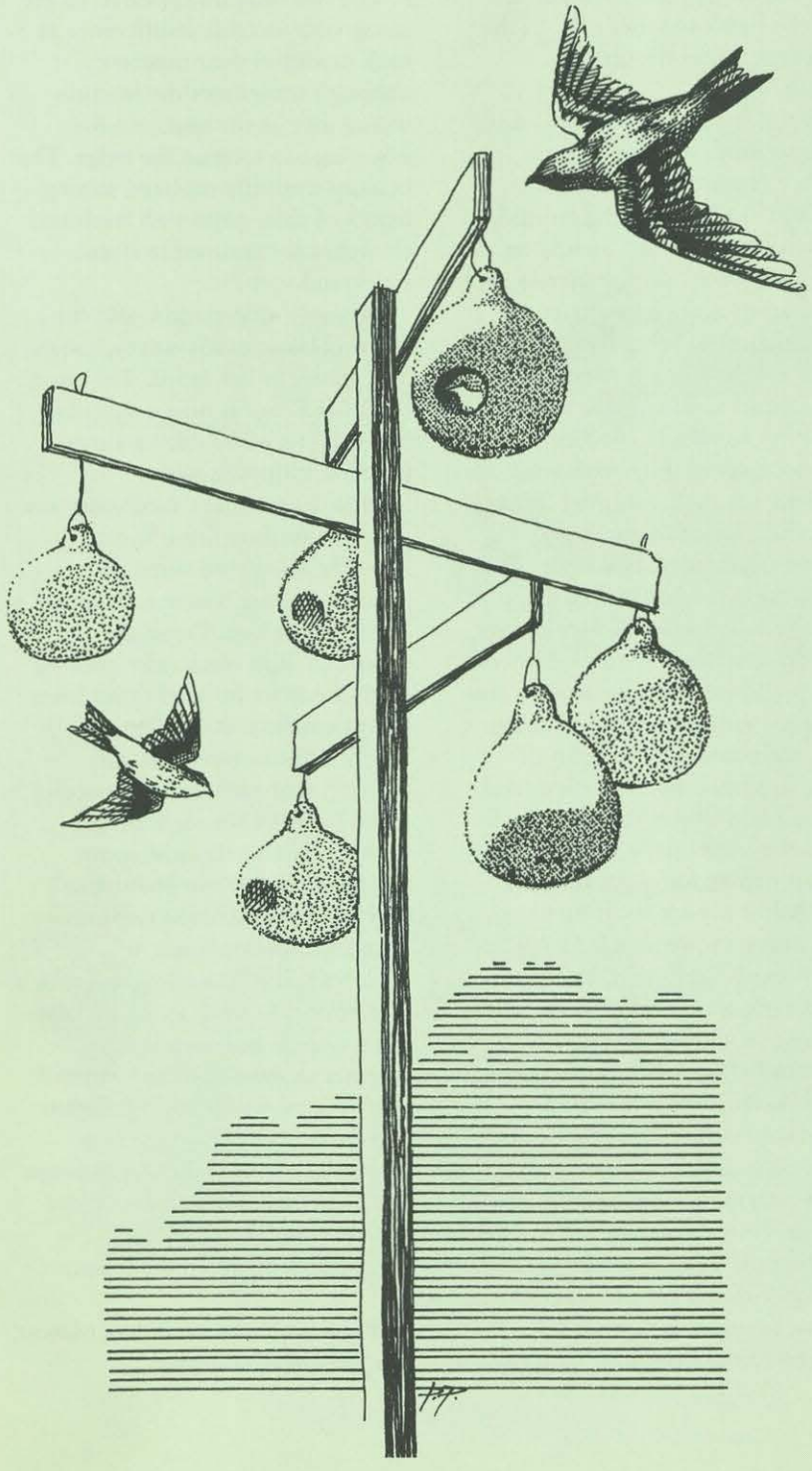
The two families appeared to get along with amiable indifference as each modified their quarters, although sometimes the martins would dive at the sparrows for lingering too long on the ledge. The martins dutifully replaced wilting leaves of their nests with fresh and the sparrows jammed in straw, string and yarn.

Now it's winter again, and the martin house stands empty, lonely. The grandeur has faded. The once-bright-red roof is now a dull clay-brown. The white sides are sun-parched, chipping, and mildew-stained. The birdhouse sits a bit crooked up there having stoically weathered summer thunderstorms, winter squalls and a hurricane or two. I miss the squirrel's little black nose peeking from the attic, its bright eyes keen to our comings and goings. It's lonely without the constantly tittering sparrows and the graceful aerial ballet of the sleek purple martins. We've thought about taking the old house down, but I don't think so. It's always been home, off and on again, to somebody. And to me, it's as much as part of this place as the hickory trees, orange groves, sudden summer storms, and the beautiful lakes where we fish, swim, dream and remember.

And just last weekend as I swept cobwebs from the cottage eaves I heard a familiar chatter of prospective bushy-tailed tenants.▷

Melinda Barnes, of Wilton Manors, is a free-lance contributor.

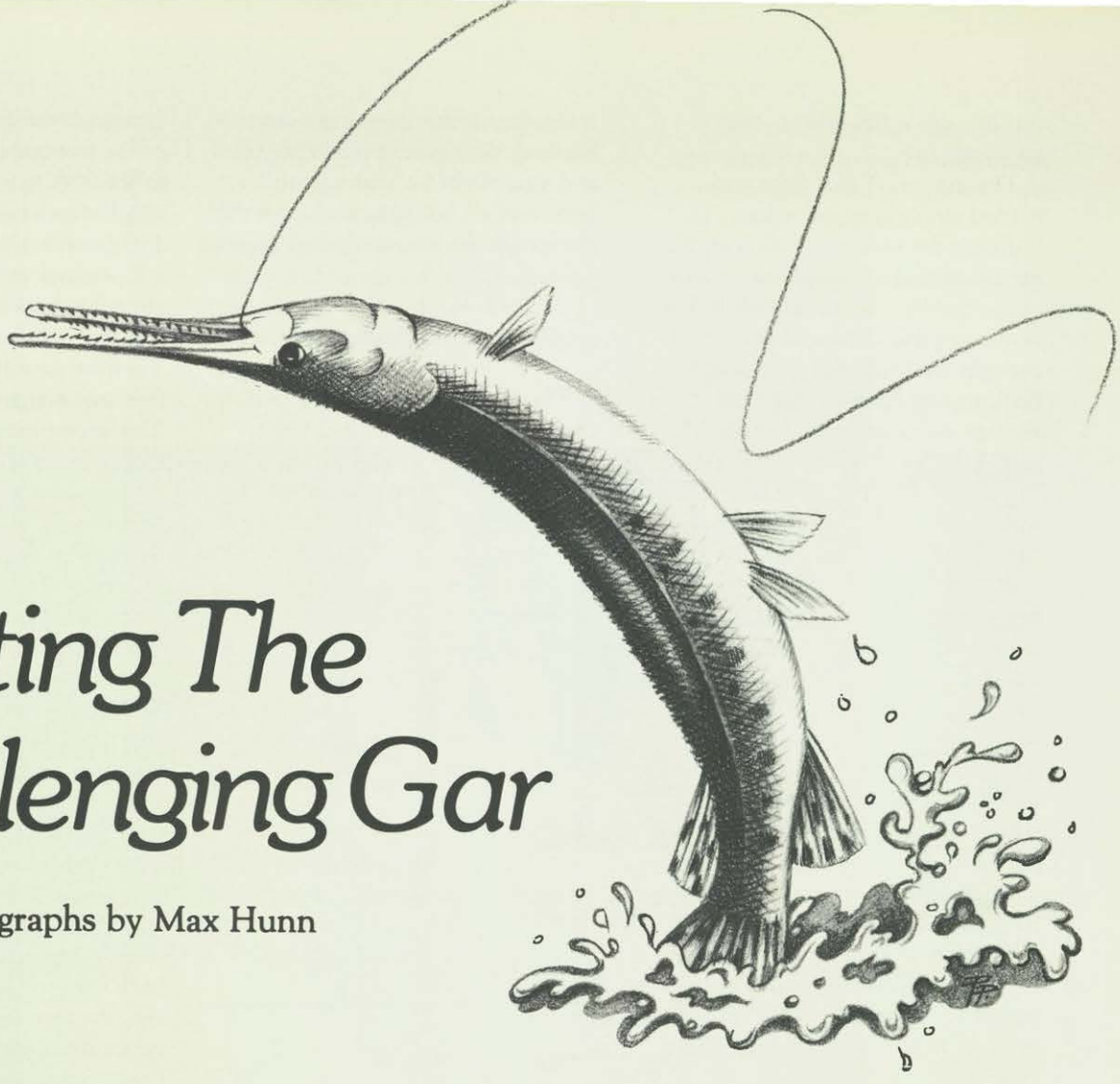
How To Make Or Buy A Martin House



You can order a purple martin house from the Audubon Workshop, 1501 Paddock Drive, Northbrook, IL 60062. The 12-nest "Grandpa Purple Martin House" makes use of a simple rope and lanyard to raise and lower the green and white enamel aluminum structure. It comes as an easy-to-assemble kit and lists at $179.95. Check your local lawn and garden shops and advertisements in nature magazines for other sources.

A more traditional martin house can easily be built using nature's own gourds. Dry the gourds for a couple of months until you hear the seeds rattling inside. Then cut an appropriate opening towards the bottom (see illustration). Remove the seeds and set them aside to plant in the spring. Drill a hole in the top in which to install a wire for hanging. Drill holes around the bottom of the gourd for drainage. Then hang the gourds on horizontal bars approximately 14 feet above the ground. These may last two or more years.

A quarterly magazine, "The Purple Martin Update," is published to enhance funding for research, conservation and educational projects. It is available to individuals for memberships of $16. For more information, contact the Purple Martin Conservation Association, Institute for Research & Community Service, Edinboro University of Pennsylvania, Edinboro, PA 16444.



Fighting The Challenging Gar

Text and photographs by Max Hunn

It was one of those unsuccessful fishing trips. We were after largemouth bass in the lower Withlacoochee River, but the bigmouths had lockjaw.

I turned to my two fishing partners, Tom Evans and Buck Bray, both professional guides in west-central Florida, and said, "Well, what do we do? I don't need any more casting practice."

Tom with a mischievous grin remarked, "How about fishin' for gar?"

He thought he was going to surprise me, but he didn't. Before I could answer, he continued, "I had more trouble on the last two guide trips with those confounded longbeaks. Let's try fishing down the river near the old power plant. They're always thick in that area."

Tom cranked the motor and we eased down the Withlacoochee. The gar were there — hundreds of them — many rolling on the surface. With our polarized glasses we could see them milling around under the surface in the clear water.

We decided to use up our supply of live shiners fishing for gar. While they can be a nuisance when you're live bait fishing for other fish, nevertheless gar are sporting to catch with bait. It takes them so long to work the bait back through their long beaks that you usually fail to set the hook. You actually take the bait away from them.

Both Tom and Buck had strikes but lost their fish with poorly set hooks. We found live bait a hindrance and had better luck with dead shiners. That didn't surprise me. I'd had similar experiences in the Homosassa River on gar-fishing trips with my guide friend, Gene Lechler. Gar, for some reason, seem more inclined to hit dead shiners than lively ones.

Gar are opportunistic eaters and will attack live baits, but not as aggressively as dead ones. Maybe they think the lively shiner is too hard to catch.

After missing several more strikes, Tom muttered in frustration, "I'm gonna let the next one have the bait for an hour, if necessary. I won't take it away next time."

Shortly, his float went under, and the gar started downstream. Tom did nothing but watch the line strip off the Ambassadeur reel on his professional shiner rod. Yard after yard peeled off, and still he waited. The gar now was almost a hundred yards downstream below our anchored boat.

"You better hit him," remarked Buck. "It'll be tough to set the hook at that distance."

Tom reared back. It was a solid connection, and the gar attempted to charge off, but Tom quickly stopped the run. It was a big fish, but a stiff shiner rod and 30-pound ▷

test line can quickly stop even a good-size fish.

The gar was full of fight and battled strongly under water. Utilizing the slow river current, the gar attempted to escape downstream again. But the maneuver failed. Tom slowly regained line and finally brought the longbeak alongside for Buck to net. It was larger than average — we estimated about 15 pounds. Soon Buck duplicated Tom's feat of letting a gar run for what seemed like an hour before successfully setting the hook.

After we lost several more gar because of poorly set hooks, Tom decided to see if he could land one with 4-pound test line. Although that was a real challenge, he succeeded for two reasons. First, he is an expert angler and made the fish fight the rod, and secondly, his fish wasn't as large. Also, the fishing gods smiled. The gar did not get the light line in his teeth. For serious gar fishing, use a light metal leader. A gar's teeth can easily clip most lines.

This particular trip again proved you can have fun fishing even when your preferred fish has lockjaw. And now, of course, more and more anglers will be seeking gar since the International Game Fish Association (IGFA) recognizes gar as a sport fish and keeps records on them.

Most anglers fish for gar with bait, because it is very, very difficult to hook a gar with an artificial lure. However, there is a method of using a modified hookless artificial lure. In Louisiana and Texas, anglers take a standard spoon, such as the Johnson-type, remove the hook, drill a hole in the end where the hook normally is, and insert a split ring if necessary. They attach a loop of fine nylon or a piece of shredded nylon rope to the ring. When the gar bites the lure, the fine nylon strands snag between its teeth, and it can't let go. What a rumpus results! But jump and fight as it will, it can't get free. Of course, you can't get it loose either except by cutting the nylon. Obviously you need a good supply of such homemade nylon lures for this type of fishing.

If you're looking for explosive angling, particularly with light tackle, try seeking out gar. Once hooked, they give you a battle royal, and you might become a proud holder of an IGFA record, now that the longbeaks are recognized as game fish.

Records and Ranges of Gar

There are four gar in U.S. waters that are in the genus *Lepisosteus*. They are longnose (*L. osseus*); spotted (*L. oculatus*); shortnose (*L. platostomus*); and Florida (*L. platyrhincus*). The alligator gar is *Atractosteus spatula*, although it is listed as *Lepisosteus* in some references.

The largest member of the family is the alligator gar, which can attain weights of about 300 pounds, and lengths of nearly 10 feet. Louisiana and Texas have an abundance of these huge fish. In Florida, they're found in the Choctawhatchee River and westward. Florida's record alligator gar is a 122-pounder that measured 6 feet, 6 inches long.

Florida's record alligator gar is a 122-pounder that measured 6 feet, 6 inches long.

In Louisiana there is an unofficial record of a 302-pound female alligator gar that measured 9 feet, 8½ inches. The 1989 IGFA record book shows records for 10 line classes, five being set in Alabama, and five in Texas. Alligator gar are found from the northeastern corner of Mexico up the Mississippi River basin to Missouri, and up the Ohio River. Florida's population is in the Choctawhatchee River and westward.

The largest alligator gar listed in record books weighed 150 pounds, 8 ounces and was caught in Texas on 20-pound test line. A Texas angler entered the record book by catching a 34-pound, 8-ounce gar on 2-pound test line. In Alabama, four of the five state records were caught in the Blakeley River, ranging in weight from 67 pounds, 8 ounces to 110 pounds, 4 ounces.

Longnose gar are the most abundant and widely distributed members of the toothy fish family. They frequently attain lengths of 6 feet and weights up to 25 pounds. The largest listed in the 1989 IGFA record book is 30 pounds caught on 12-pound test line in Lake Henderson, Inverness, Fla. The longnose is found throughout the eastern half of the United States, through the Mississippi River system and other drainages in larger streams and brackish coastal inlets. Their range extends from as far south as Lake Okeechobee, the Gulf states and the Rio Grande to as far north as Minnesota, the Great Lakes and Quebec, Canada. Their western limits extend to the South Dakota-Minnesota border, and probably as far as Montana and the Pecos River in New Mexico. They are found both east and west of the Appalachian mountains, with large concentrations along the Atlantic coast. Sardis Reservoir in Mississippi has produced six of nine records. Florida waters have yielded two – a 22-pound, 1-ounce fish caught from the Choctawhatchee Bay on 8-pound line, and a 26-pound, 8-ounce caught in the Withlacoochee River on 20-pound line.

The spotted, shortnose, and Florida gar are easily misidentified. The spotted and Florida gars have spots on top of the head as well as over the entire body and on all the fins, while other gar do not have spots on the head.

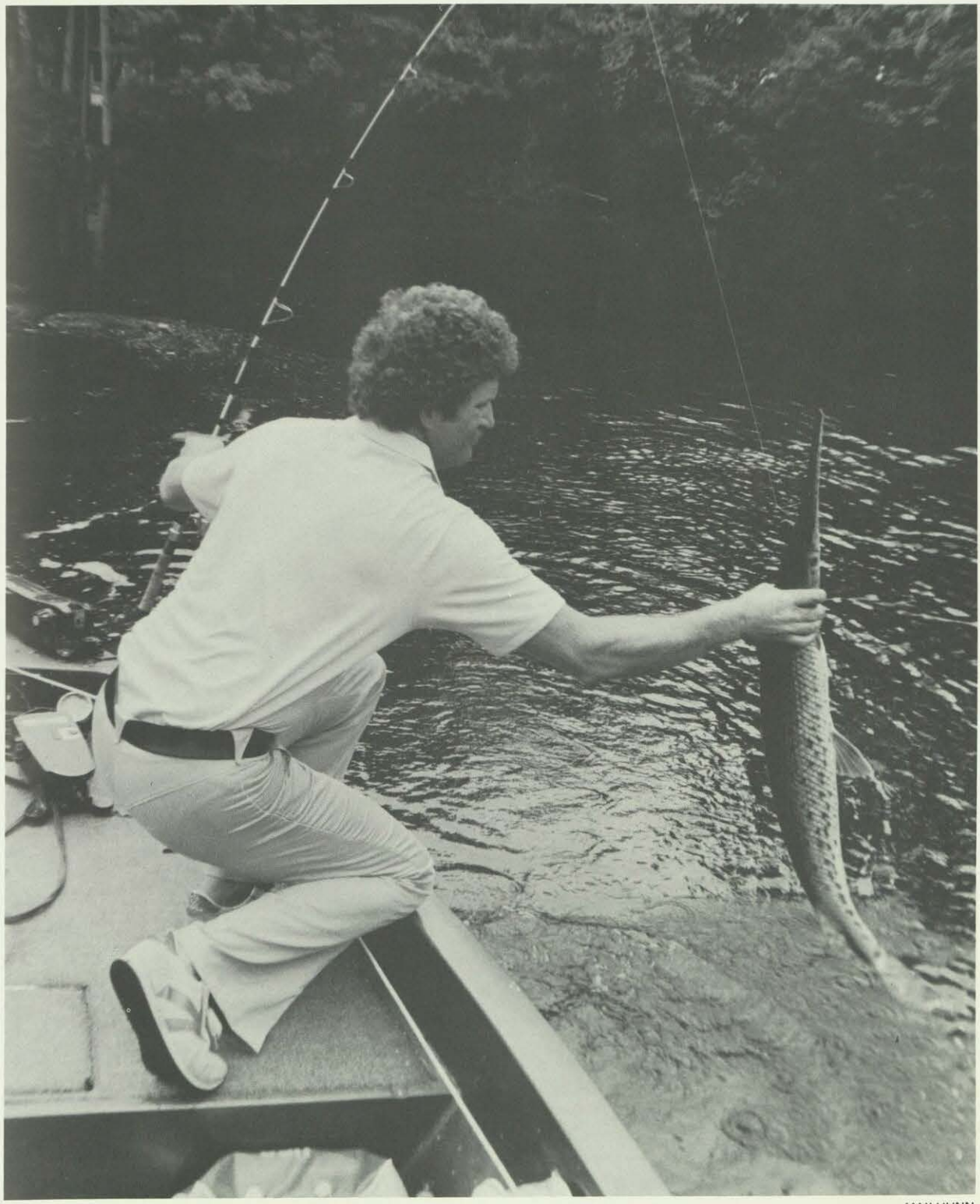
The spotted's range is from Minnesota to Texas and northwest Florida. In Florida, this gar is found primarily in the Ochlockonee River and westward. It doesn't grow as large as some of its cousins. The six IGFA records range from over 6 pounds to 8 pounds, 12 ounces, and all were caught in Alabama waters.

Shortnose gar are not found in Florida. Its range overlaps the spotted's, extending from as far north as South Dakota and

Minnesota and southwest to eastern Texas. It's more abundant in the southern part of its range, preferring slow-moving streams and canals. It's the light-weight of the gar family. IGFA records show six classes ranging from 1 to 5 pounds in weight.

The Florida gar is found from Georgia to Florida, but not as extensively as some other members of the species. This gar is normally found east of the Ochlockonee River and throughout the peninsula. It is found extensively in the canals of south Florida, often dominating the waters. All seven of the IGFA records were set in Florida, ranging from 5 to 7 pounds.

Max Hunn is a free-lance writer specializing in Florida fishing articles which are published in numerous state and regional magazines.



MAX HUNN

Hunter Education

By Captain Ed Tyer
Hunter Education Coordinator

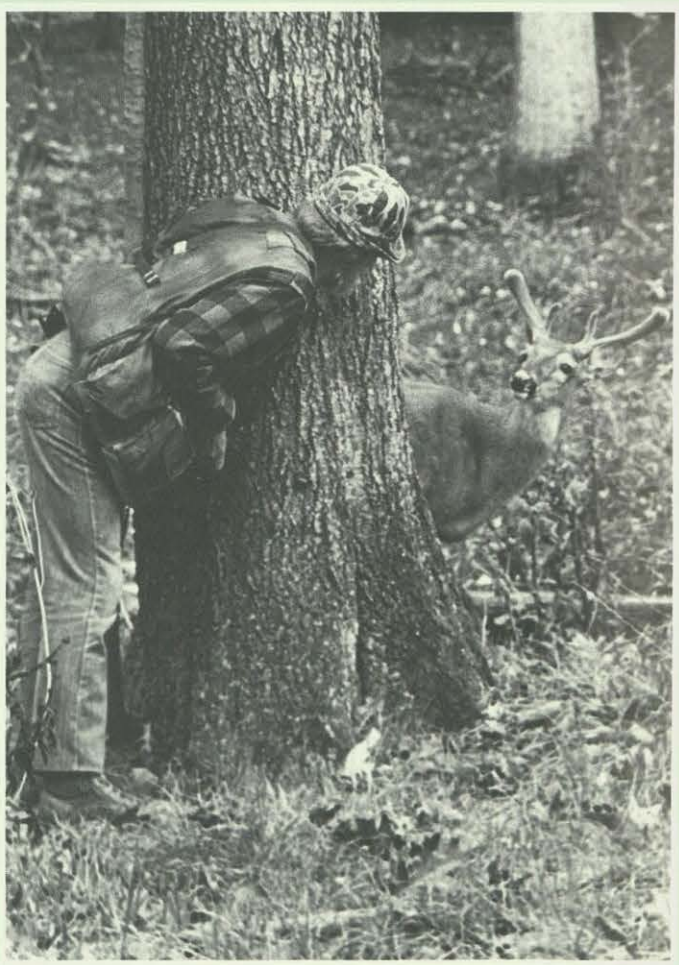
Are you thinking about hunting out of state this fall? Although it may seem early to think about hunting trips, it actually may be too late. Each year more hunters hear the call of a distant woods and try their luck in another part of the country. As a result, many states must set quotas and hold drawings to manage the growing number of visiting hunters. In some cases, you have to apply for a drawing six to eight months in advance. The actual dates and/or portion of the state you'll be drawn for (if you are drawn) may not be established when you apply. But, if you are lucky enough to be drawn, there are a few things you can do to help ensure that your hunt will go smoothly.

First, make sure you qualify for a hunting license in the state you plan to hunt. Hunter safety training is required in most states for at least some hunters. The Florida Game and Fresh Water Fish Commission offers free hunter education courses. If you need the course, do not wait until the last minute to take it. Something could happen to keep you from attending, and your trip would be in jeopardy. Out-of-state requirements vary drastically. For instance, in Colorado, hunter safety training is required for hunters born on or after Jan. 1, 1949. In Georgia it's required for hunters born on or after Jan. 1, 1961. Effective June 1, 1991, hunters born on or after June 1, 1975 are required to have hunter safety training before hunting in Florida.

Do your homework and plan your trip properly. Make a list of equipment, clothing and supplies you will need. If you are using an outfitter, he will be able to help you. If not, making a list is one of the most important things you can do.

Investigate the hunting laws for your destination. Contact the wildlife agency in the state you plan to hunt for relevant information. Laws vary greatly from state to state. In some areas, out-of-state hunters are required to have a guide. The type and caliber of firearms allowed will also vary. Some states allow only shotguns while others prohibit auto-loading rifles. Regulations can also vary within a state according to the area hunted. Most states have established minimum caliber requirements for big game hunting. In some states, deer hunting may require a minimum of a .25-caliber rifle. A handgun may be required to be at least .41 caliber. Some states use the amount of energy a firearm develops as the guide. For instance, they may require a handgun to develop a minimum of 1,000 foot/pounds of energy at the muzzle.

No *ethical sportsman* would intentionally violate a game law. But, keep in mind that ignorance of a law is no excuse and apprehension for a violation can be very serious. Learning as much as possible about the area, the game, laws and local customs will go a long way toward making your hunting trip enjoyable.



CHARLIE HEIDECKER

Delicate Balance

Species: Gopher frog (*Rana areolata*)
Florida Status: Species of Special Concern
Federal Status: Under review for listing

Florida is home to 27 native species of frogs and toads. Of these, eight belong to the genus *Rana*, the so called "true frogs." The most familiar are the bullfrog and leopard frog. Most of the "true" frogs are associated with wet habitats, and they seldom wander far from water. Not so the gopher frog. It lives most of the year in dry, upland habitats, where it typically occupies the burrows of the gopher tortoise, a habit from which it derives its name. The gopher frog originally ranged throughout mainland Florida with the exception of the Everglades and other extensive wetlands.

This rather stocky frog reaches a maximum body length of about 4 inches. The gopher frog is gray with numerous dark spots on its back. The skin is rough-textured, and down each side of the back is a low fold of skin, which is often bronze in color. It can be distinguished from other "true" frogs by skin folds on its back, and gray background color. From the toads, with which it shares the upland habitats, it is distinguished by its extensively webbed feet, more pointed snout, and dorsolateral skin folds.

Like all of our native frogs and toads, gopher frogs must return to water to breed. Typical breeding sites are open, grassy ponds which dry with sufficient frequency to eliminate predaceous fish. In response to very heavy rains, gopher frogs may breed at any time of year. Typically, though, in north Florida, breeding occurs between February and April, depending upon rainfall. Farther south, in central and southern Florida, breeding usually coincides with the beginning of the rainy season in May and June. The breeding call of the male is a distinctive, prolonged snore, which may be heard at a distance of several hundred yards.

Gopher frogs spend three to four months as tadpoles before transforming into frogs and moving into the surrounding uplands. They may disperse considerable distances from the breeding ponds; one adult was recaptured at a distance of 1¼ miles from the pond where it had been marked during the breeding season.

BARRY MANSELL

Several factors have contributed to the decline of the gopher frog. Perhaps most important has been the decline in gopher tortoise populations. Without the protected environment provided by the tortoise burrows, gopher frogs are unable to withstand the drying conditions which prevail in the arid habitats where they occur. In some areas, the open scrub and sandhill habitats on which these two species depend have been replaced with urban sprawl or croplands, or, as a consequence of fire exclusion, they have been invaded by oaks and other hardwoods, which shade out the herbaceous plants on which the tortoises feed. In some areas which still support good tortoise populations, gopher frogs are absent because the seasonal ponds in which they once bred have been drained or filled. Thus, survival of gopher frogs in a given area is dependent not only upon the presence of tortoises, but also upon the maintenance of suitable breeding sites.

— Paul E. Moler
Bureau of Wildlife Research

St. Marks Refuge

By Michael Wisenbaker

St. Marks is one of the oldest, largest and most accessible national wildlife refuges (NWRs) on the Gulf coast. Established in 1931 to enrich habitat for migratory waterfowl, it covers 64,000 acres (plus 32,000 adjacent acres of Apalachee Bay) in Wakulla and Jefferson counties in north Florida.

Most visitors enter St. Marks NWR on C.R. 59 and usually limit their tours to the stretch of asphalt between the visitors' center and the lighthouse. Unfortunately, these people never experience some of the more picturesque and intriguing parts of the refuge, far removed from motorized vehicles and paved

roads. These diverse outlying areas provide greater opportunities for exploration and wildlife observation.

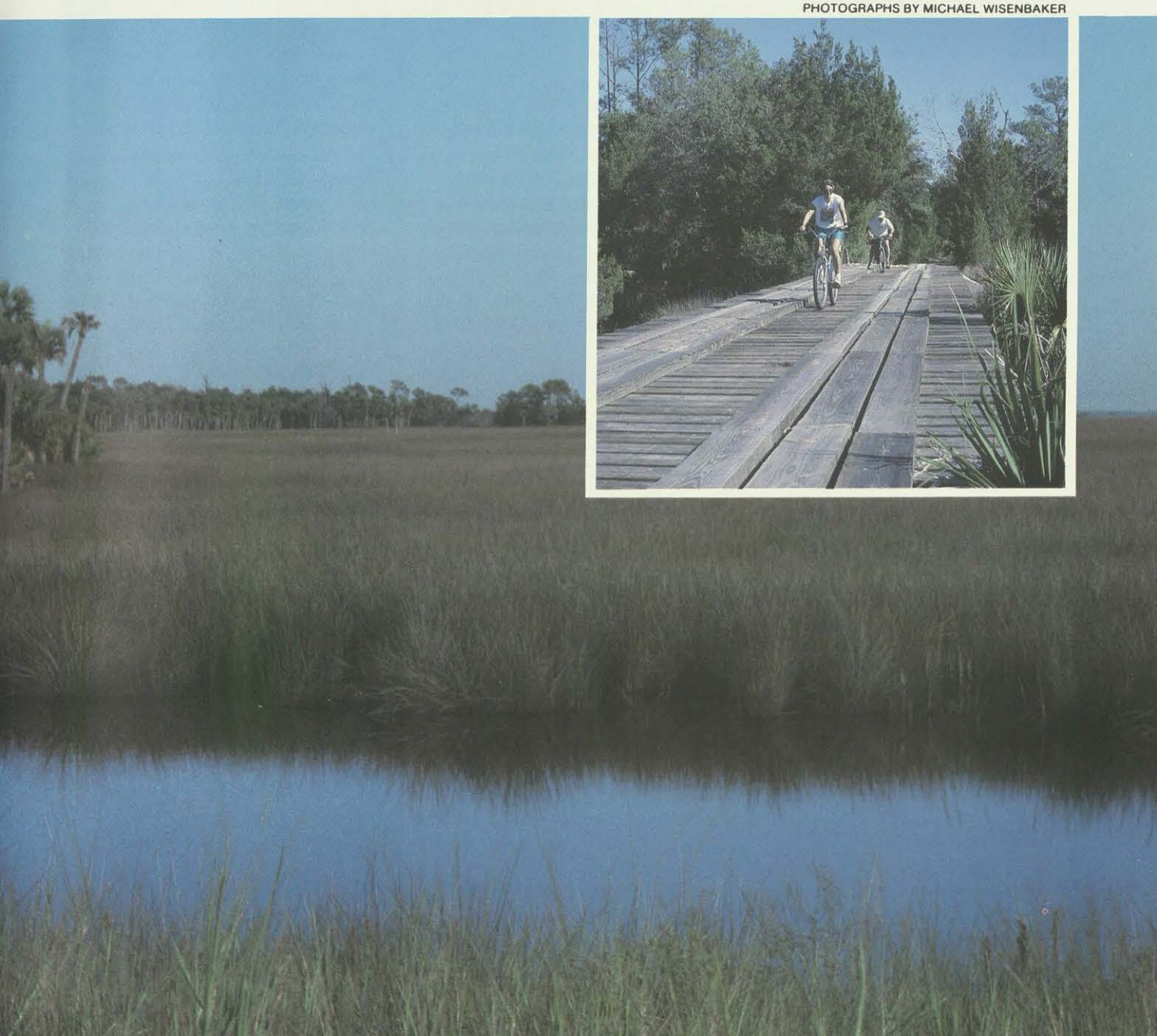
If you hope to see a variety of creatures, it is best to explore the outer reaches of the St. Marks NWR as quietly as possible. Hiking, trail biking, canoeing and sea kayaking provide the means to do this. Such treks have an added benefit of helping keep you in shape while you enjoy the outdoors.

St. Marks NWR's marked trails, dikes and woods roads stretch for miles, taking you through some of the most diverse habitats in Florida. Life abounds throughout. The St. Marks section of the Florida Trail alone is almost 45 miles long and recently became part of the National Scenic Trail. Those "through-hikers" who walk the entire 45-mile section now have six campsites spaced six-to-eight miles apart in the refuge. For leisurely day trips, select one of the primitive walking trails: Deep Creek (7 miles), High Ridge (5 miles), Otter Lake (9 miles) or Stoney Bayou (13 miles).

When time is limited, or if you want to cover greater land distances, a trail or mountain bike is a pleasant option. You can even combine biking and hiking, cycling through territory you've already walked in order to reach new hiking areas. Most dikes and woods roads (including all primitive trails) are well-suited for biking. Some fragile environments along the Florida Trail, however, should be traveled by foot. Still other segments ramble through difficult terrain where it's easier to walk than to ride.

Extend your range even farther with a canoe as you float over shallow, grassy flats and glide past countless tree islands in a sea of tidal marshes. You can probe untamed freshwater swamps, streams and lakes. Such voyages let you escape your day-to-day worries and become more keenly attuned to ▷

PHOTOGRAPHS BY MICHAEL WISENBAKER



the complex ecosystems of the natural world. (Note: All boats are prohibited in the impoundments or refuge pools from Oct. 15 through March 15 to help protect wintering waterfowl.)

For exploring offshore islands and long coastal reaches, a sea kayak is the best choice. Sea kayaks handle high winds and heavy seas much better than a canoe. This is an important concern, as foul weather is likely to kick up with little warning along Apalachee Bay. Easiest access to the bay is via either the lighthouse boat ramp or the newly acquired ramp on the eastern bank of the Aucilla River. Between the two ramps, portaging is your only legal alternative, as motor vehicles are prohibited on the levees.

Whether exploring the refuge's bounty by land or sea, it's wise to carry a few items with you. Although some think only beginners need a compass and maps, venturing into unknown regions without them is foolish. I recommend using the U.S. Geological Survey 7.5-minute series topographic maps, a small-scaled refuge map from the U.S. Fish and Wildlife Service and Florida Trail Association maps.

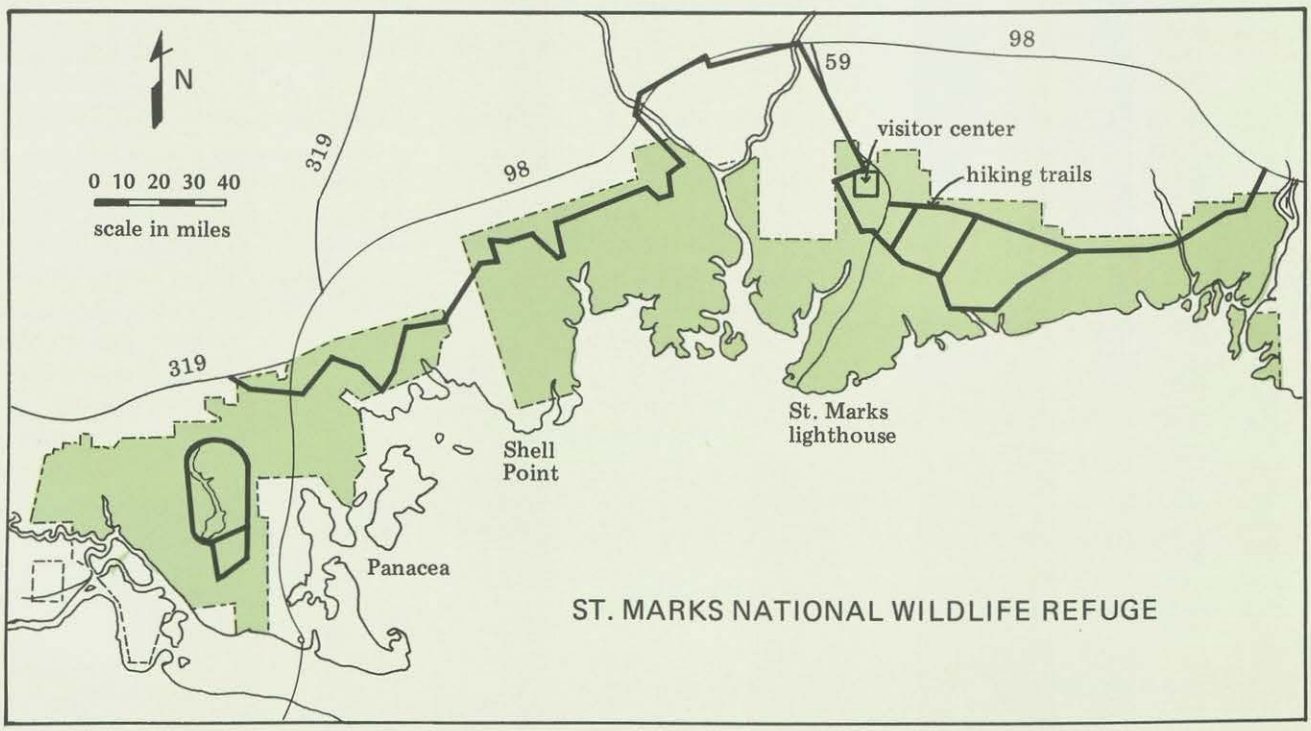
This is true even on blazed trails. On a recent hike around Otter Lake, I carried a map and compass but kept them in my pack since the sun was out and I knew "exactly where I was." Unexplainably, I chose the wrong fork at one point and ended up on a strange road — several miles off the trail. Realizing my error, I turned back to the trail and arrived at my car tired and hungry just before dark.

People who visit remote parts of the refuge should also carry a small first aid kit. Since there won't be any passing motorists to render aid, trekkers should be prepared to deal with emergencies. Potable water is sparse, and it's dangerous to drink from springs and streams, so carry plenty of liquids. Paddlers should bring an extra paddle and cyclists should carry a spare tube or patch kit.

Other optional items include field guides for identifying plants and animals, a pair of compact binoculars and high-energy snack foods. Take a camera and lots of film to record eye-catching scenes and the myriad flora and fauna. Serious photographers will need a lightweight tripod, close-up attachments and several lenses — especially a small telephoto or zoom lens for animals and a moderately wide-angle lens for scenic shots. Through-hikers, after registering at refuge headquarters, will have to pack-in their camping gear and meals. For those who loathe mosquitoes, chiggers, ticks, sand gnats and other biting flies, insect repellant may be in order.

Ask the refuge staff a few questions about the kinds of wildlife you'll see and their likely whereabouts. In addition, the "Calendar of Wildlife Events" brochure can serve as a basic field guide. It gives a brief account of month to month routine wildlife activities in St. Marks NWR.

Over the years my countless sojourns into the refuge have brought me face-to-face with bobcat, otter, fox, wild turkey, wood storks, bald eagles, swallow-tailed kites and a myriad of migratory butterflies. I've hiked through verdant grasslands, abundant with spectacular wildflowers. While kayaking, I've seen numerous waterfowl and chanced upon manatees and Atlantic bottle-nosed dolphins. While some creatures are very shy, others seem indifferent to humans. To help



PHOTOGRAPHS BY MICHAEL WISENBAKER

Above left: A variety of wildflowers and native grasses grow in the St. Marks NWR. Below: Numerous migratory waterfowl are seasonal visitors, and a variety of wading birds are year-round residents in the refuge. Far right: Winding creeks and estuaries attract these bird-watching canoeists.

WILLIAM J. WEBER

protect the variety of seasonal and year-round wildlife residents at the refuge, please interact as little as possible. Stay on the main paths and don't interfere unnecessarily. If animals are nesting or otherwise claiming or defending their territory, give them a wide berth, no matter how gentle they may seem.

Beyond wildlife-watching, many scenic landscapes and noteworthy historical sites can be found within the refuge. One of my favorites is the old Aucilla Tram Road, about eight miles west of C.R. 59, where a skinny wooden bridge spans the primeval Pinhook River. A mile or so east of the bridge, the Florida Trail shadows several old trams (elevated railways used by early loggers for removing timbers) through palm-studded hammocks. One spur of the tram, not on the trail, leads — if you're up to fording several creeks — all the way to the mysterious Aucilla River.

Freshwater springs boil to the surface both in the refuge and just offshore. These include Spring Creek Springs which may have an average daily discharge higher than any spring in the United States. Some lesser springs upwell in the brackish marshes. Their runs are most evident at low tide. A clear, blue flow lures you to hidden limestone vents.

As you canoe across these waterways, the cackling of rails or the bellowing of bull gators may fracture the silence. Beyond the tidal marshes, some spring runs meander through virgin hardwood swamps, abruptly ending in placid pools nestled in sylvan hammocks.

Prehistoric sites are abundant in St. Marks NWR. As we hiked along Stoney Bayou Trail, the rush of rapids hailed us to a small tea-colored creek. In tracing the burbling sounds, we discovered bits of chert littering the ground. Chert is a form of silicified limestone used by Indians to fashion stone tools. Some of the pieces were projectile points dating to the Middle Archaic period, 5,000-7,000 years ago. The Indians used this area to quarry chert which was imbedded in the region's limestone. Archaeological sites dot virtually every palm/oak/cedar hammock in the refuge. Most of the sites date to within the past 2,500 years. Many sites are aboriginal middens — piles of oyster, clam and conch shells, bones of fish and various animals that were food for Florida Indians. Please ▷

ANDREA H. BLOUNT

TERRY TAYLOR

remember that it is illegal for visitors to take or tamper with artifacts found on federal lands.

The St. Marks area was among the first places visited by Europeans because it offered one of the few good harbors along the northeastern shore of the Gulf of Mexico. Spanish artifacts, probably associated with the 1528 Narvaez expedition, were unearthed in a mound near the fire tower just north of the lighthouse. There, conquistadores built crude boats that carried them to their deaths in a storm off the Texas coast.

Three miles west of the visitors' center, on the banks of the St. Marks River, lie the ghostly traces of Port Leon. This bustling mid-19th century port received cotton hauled by one of Florida's oldest railroads. Cotton was then shipped on sailing schooners to mills in the northern states and in England.

A visitor in 1841 described the people living in Port Leon as: "The ruff scuff of civilization and as to law ...they don't know what it means, for Law and Justice are not in their vocabularies. I was asked to drink about 500 times when I refused they would turn and look at me as tho they were shot...." (Excerpted from Elizabeth F. Smith's *A Tale of Three Tombstones*.)

Port Leon was decimated by a yellow fever epidemic later that year. In 1843, a ferocious hurricane dealt the final blow to the town. Its citizens vanished, with most moving up river to establish the town of Newport.

Several years later, Confederate saltworks were set up on the fringe of many of the refuge's coastal hammocks. During the Civil War (1861-1865) salt-making was prevalent throughout the South, but primarily along Florida's coasts. Salt was used to preserve foods and animal hides and to round out the diets of draft animals. Driven by dire necessity and lured by windfall profits, the Confederate government and private investors set up saltworks along Florida's Gulf coast that were destroyed in Federal raids and repeatedly rebuilt.

Civilians dug shallow wells near estuaries and dipped the briny water into large kettles and vats. Brick or rock furnaces were then used to boil off the water, leaving salt in the cauldrons. On St. Marks lands today, scattered pieces of rusty metal, brick fragments and other stones serve as reminders of a war that brought privation and distress to many Floridians.

Even if you have a specific place in mind to visit on the refuge, the things you see along the way are often just as remarkable as your destination. Several years ago on a return trip from Port Leon, we heard something rustling about in an abandoned fire tower. We climbed a few steps to see what was making the ruckus. A large bird, flushed out of the tower, lighted in a nearby pine. I felt his stare and soon locked eyes with a barn owl. Leaving him to his home, we continued our journey. About a half hour later, biking through a massive clear-cut in the Aucilla Wildlife Management Area, we saw a stealthy shadow slinking ahead. We jumped off our bikes and grabbed our binoculars to focus on a sizeable mammal. Catching our scent, the bobcat quickly darted into a cypress dome.

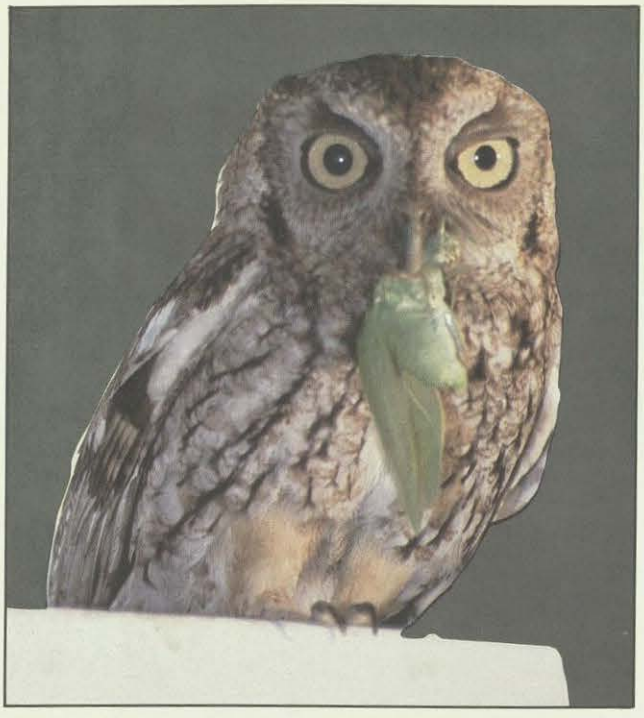
No matter your method of travel, the only way to know and appreciate the refuge in its entirety is to hit the trails, woods roads and waterways that crisscross this isolated region of Florida. A plethora of memorable vistas, archaeological and historic sites and colorful wildlife await those willing and prepared to stray onto the less-traveled paths in search of treasures deep within St. Marks National Wildlife Refuge.

For additional information on the St. Marks National Wildlife Refuge, contact the Refuge Manager, P.O. Box 68, St. Marks, FL 32355, (904) 925-6121. For more information about the Florida Trail, contact the Florida Trail Association, P.O. Box 13708, Gainesville, FL 32604, (904) 378-8823.

The author thanks biologist Joe Reinman and park ranger Robin Will and other St. Marks staff for their help with this article.

Michael Wisenbaker is a preservation planner for the Division of Historical Resources. He is an archeologist, part-time free-lance writer and certified SCUBA diver.

zooming in on ATTIC DWELLERS



Text and Photographs By Jane T. Adams

Late one Saturday in April I picked up a ringing phone and listened as an excited friend encouraged me to come quickly, because a baby owl was in her carport. Once people know you enjoy photographing wildlife, they become helpful informants. Hurriedly, I picked up my Pelican case, which is equipped for such immediate notices, and removed several rolls of Kodachrome 64 film from in the refrigerator. Then I hurried down the highway to Ft. Ogden, hoping the owl would still be there when I arrived.

As my car entered the Barnwells' driveway 15 minutes later, I could see a fuzzy white object that looked like a large golf ball. It was perched on a green doormat on the steps. Nearby on a window ledge, a larger owl sat watching every move. This cautious mother's piercing yellow eyes showed concern over her misplaced nestling. Quietly, I opened the car door and emerged slowly. Using my 80-200mm Pentax zoom lens, I began recording their dilemma.

After a diligent, but unsuccessful search for the owl's nest, we decided to lift the doormat where the fuzzy owl was standing to position it near an oak tree. I hoped that perhaps then I could photograph the small, apprehensive mother assisting her young.

Almost immediately the adult flew down and began feeding a mole cricket to her baby. They paid little attention to me as I continued to record the reunion. In my experience I have noted that when birds are feeding, it is often easier to approach them. Another adult soon appeared, but this one swooped upward, landing on a light meter; then it scurried under the overhang of the roof. Quickly, the bird emerged and flew off again. This was a dead giveaway!

We observed that the hole in the soffit's screened vent led to the owl's nest. We carefully lifted the mat and carried it back to the attic home where two other nestlings crouched by a crossbeam. Both adult owls were flying in and out of the punctured screen observing our actions.

Knowing your subjects thoroughly gives you a tremendous photographic advantage. So, I spent a great deal of time in the public library and going through my personal wildlife references. In this quest for knowledge, I confirmed that my subjects were common screech owls (*Otus asio*), which are known for their screeching wail. They are the only small eastern owl with ear tufts and are also distinguished by feathered feet and legs. These small owls range 7 to 10 inches long, with wing spreads of 16 to 22 inches.

Their nocturnal lifestyle meant that their activity would have to be photographed at night. Learning that they lay eggs during March and April, I understood their sudden presence in the attic. Since the incubation process for the usual three to eight white egg clutch takes 26 days, we calculated an approximate departure date. These birds have been found nesting in tree cavities and woodpecker holes and are noted for not putting a lining in their nests — a fact we substantiated when photographing the attic nest area. Both parents feed the down-covered hatchlings, which fly at about 28 days.

It was a rewarding process to approach their territory as the adults caught various insects and brought them to the young. I was able to move about, photographing from many different points of view, since the owls were busily engaged in feeding activities. For four weeks I spent many evenings recording the adults' movements as they foraged by moonlight. Succeeding in obtaining correct night exposures proved to be difficult for me. Lights ▷

We watched as an adult screech owl patiently fed and tended to the young owlet.

from the carport provided some illumination, but a small flashlight proved essential for reading dials, etc. I set my Pentax AF400T dedicated flash unit on its manual mode to calculate the meter settings.

I would try to anticipate the exact locations where the owls would catch their prey and wait patiently. Being silent and inconspicuous was a key element to witnessing exciting behavior. The parents would perch on telephone wires, tree limbs, a nearby fence or the electric meter box on the house. Abruptly, they would dive into the air, snatch a cricket which had been attracted by the carport lights, and then swoop under the eave. The parents often devoured the insects instead of feeding them to the young. This feeding process lasted for several hours. When the nestlings and parents satisfied their hunger, the mealtime activities stopped.

After many attempts to capture this procedure on film, I decided to take my flash unit off the camera and use a Quantum battery unit for quick recharge. This way I could "paint" the scene with light using the "ready test" button. Although the procedure was somewhat awkward, it netted some terrific results for one not too proficient in night photography.

One evening we heard a hissing noise, similar to that of a rattlesnake, but our ground search was unsuccessful in locating the source of the sound. Finally, glancing up along the screened air vent in the soffit, we saw two young owls vocalizing their displeasure. Apparently, they had gotten too far from the solid attic boards and were flustered. Since the young fledglings had ventured a considerable distance from the nest area, it was certain that they would be flying away soon.

Late the next evening we climbed the attic stairs to see what was taking place. Prior to entering, I had estimated the camera settings, but carried a Q-Beam with me in case of an emergency. Since a photographer must constantly deal with the unpredictability of animals, it is mandatory to be ready for whatever might happen, or take the chance of losing a once-in-a-lifetime shot. The spotlight became our scanner in the attic. As we moved it quickly across the large space, we saw the piercing yellow eyes from three small creatures. This triggered an

Landing momentarily on a light, an adult screech owl scurried under the overhang of the roof to reach the nest.

Abruptly, the owls would dive into the air, snatch a cricket, then swoop under the eave of the roof to feed their young.

When the owlet noted his human observers, he fell over and played dead. After a lengthy period, he hopped up and jumped away.

unpredicted response. Owls, young and old, began swooping, hopping and making short flights down the rafters into the far dark corners. There was no doubt in our minds that this was to be the final photography session!

In March of the following year two adult screech owls again appeared. It was not long before sounds were coming from the attic, and activities began repeating themselves. During the early part of April, we found small eggs in the attic, and on April 29, when I climbed into the attic with my camera, the young had already hatched.

Early one morning a commotion awakened the human inhabitants of the household. Another adventurous baby had fallen. Again, I was called to bring my equipment. When the young screech owl noted its human observers, it fell over and appeared to be dead. Its feet and body became very stiff. As I photographed this pitiful object with my 35-105 Pentax zoom lens, I could envision the awful photo caption: "Bird dies of heart failure from photographer's presence!" However, after a lengthy period, this actor surprised us by jumping up and leaping away. Using a combination hop and wing-flapping movement, the youthful adventurer advanced toward an orange grove from which both parents were sending whining signals. The fledgling's answer was a repeat of the mournful whine emitted by the frightened youngsters the previous year.

Throughout the next several hours the parents guided it from the ground into the top limbs of the tree. With each upward bound, the juvenile gained strength and confidence. Two devoted parents encouraged this ascent by moving higher every time the owlet came toward them. Their patience and dedication paralleled that of good wildlife photographers. Although they stayed with it during the day, at night their interests were divided between bringing food to it on the ground and to its three brothers and sisters in the attic. Since owls are defensive attackers, I took care not to approach them too closely while documenting this bird's development. How nice to own a zoom lens! ▷

Fascination with these part-time residents continues. Now the Barnwell family eagerly anticipates the yearly arrival of their feathered friends — and I continue to keep my camera equipment ready for immediate action!

Editor's note: Screech owls are especially tenacious in nest-guarding and may attack in defense. Be a responsible wildlife watcher and keep your distance, or use a blind to protect your personal safety and to keep from interfering with critical nesting behavior.

Jane T. Adams, of Arcadia, is a free-lance writer and a teacher in the public school system in Charlotte County.

The fledgling tries its wings.

The screech owls found the attic quite suitable for their unlined nest.

An adult owl watches nearby.

The Case of The Two-Quail Rattlesnake

By D. Bruce Means

Difficult as it is for most hunters, ever hear of a rattlesnake that could bag two quail from the same covey? In the early spring of 1976, Russell Howell of Foshalee Plantation north of Tallahassee delivered a dead eastern diamondback rattlesnake to me for an autopsy study I was doing on the species. When I dissected the 3½-foot, 4½-pound male rattler, I was surprised and mystified. The surprise was the presence of a species of bird in the stomach. Birds are rare in the diet of the eastern diamondback. I found only seven birds (2 percent) out of 335 food animals in the digestive tracts of 776 rattlesnakes that I dissected from 1976-1984. The mystery was that not one, but two adult quail were stacked end to end in the snake's stomach, both freshly ingested.

While it is entirely plausible that a snake might encounter two coveys of quail and get one bird from each covey in one morning, such a scenario seemed impossible in this case because the snake was temporarily blind! He had been killed at the height of his shed cycle. In this temporary condition, all snakes are nearly blind as the outer, clear spectacle scale that covers the eye is loosened from the new scale underneath by enzymes and oils. The eye appears a dull gray, or blue-gray color — a condition familiar to all snake keepers. In this condition, Howell's rattlesnake would have been sedentary and the two quail would each have had to come within striking distance. Then, without flying off, they would have had to fall down dead, close enough to the rattler for it to tongue-flick the ground and find them. All this seemed rather improbable to me because the dispersion of quail coveys and rattlesnakes seemed much too sparse to allow two such events in one morning.

I tried to envision how a striking rattlesnake might bag two fast-flying quail on the wing — impossible!

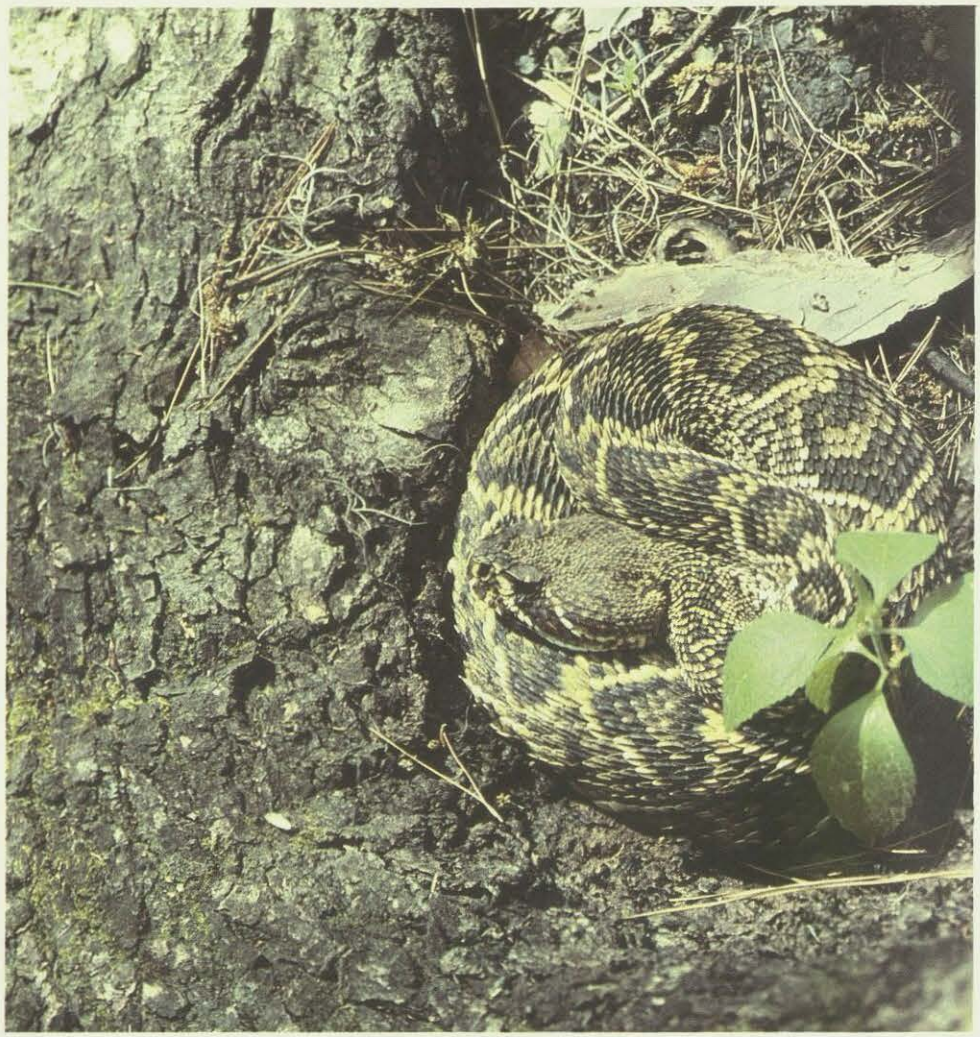
Ever hear of a snake that bagged two quail from the same covey?

Moreover, if the first quail had been struck on the ground, surely the covey would have flushed at the instant of the initial strike and sped away on the wing as quail are wont to do when startled. In spite of popular opinions to the contrary, no rattlesnake is *that* fast. Even if one could imagine that the lucky rattlesnake had time to nail two birds in a particularly dense thicket during all the commotion of quail bursting into flight, it stretches the imagination that the rattler could find and ingest both birds. In my opinion, the sluggish eastern diamondback rattlesnake rarely eats birds because, once struck, the victims fly off and die, leaving no trail over which they can be tracked.

I examined both quail for shotgun pellets, thinking that the snake could have found two injured quail that might have huddled together and died after being shot nearby, but there were none.

So how in the world could a blind rattlesnake strike, kill, track and ingest two healthy quail? I couldn't imagine any normal circumstance under which that was possible. But I recalled being amazed one day on my rattlesnake-checking round to find a whole covey of quail down a gopher tortoise burrow. Also, Howell's rattler called to mind a report by Herbert L. Stoddard ("Birds of Grady County, Georgia," a bulletin of Tall Timbers Research Station) in which he said that Gordon L. Hasty of Thomasville, Ga.

> ...had observed a terrified quail approaching at topmost speed just inches ahead of the outstretched talons of a "blue darter" [Cooper's Hawk]. The quail and the darter hit the ground almost simultaneously about 30 feet distant at the mound of a large gopher tortoise hole. Hasty at first assumed that the quail had been caught. At a slight move on [Hasty's] part, the darter departed in a hurry, revealing that the quail had literally flown into the mouth of the gopher hole, ▷



BRUCE MEANS

and disappeared from sight. Hasty remained motionless, and in a few moments the quail appeared at the mouth of the gopher hole, looked about, but on seeing him, scooted back in again.

Considering that it was March and a few rattlesnakes still were loitering near their overwintering holes, I had a hunch. I asked Russell to tell me where and how he killed the snake. "I shot him at the entrance of a large tortoise burrow, coiled in the sun," he said. That was all I needed to construct the following plausible hypothesis.

In the morning of its demise, Howell's blind rattlesnake may have been rudely awakened in the tortoise burrow by a bobwhite covey fleeing an avian predator. Crowding down the hole to escape death by talons, the first quail that reached the rattlesnake was easily fanged. Of course it began a furious fluttering, possibly trying to back up or to run to the surface of the ground through the crush of its covey mates crowding their way in. In the ensuing quail chaos, the rattler had plenty of time to strike again, envenomating a second, and possibly even other birds in the darkness. The crowded passageway, darkness and confusion prevented the two envenomated birds from exiting the burrow and flying out of tracking range of the rattlesnake. They were quickly paralyzed by the venom, and probably died there in the dank hole with their slayer.

In his "blue eyes" condition, the rattlesnake may not have struck the quail during a normal encounter at ground surface because, being blind, most snakes go off their feeding until they shed their skin. But when trampled by quail feet, the alarmed rattler may have struck in surmised defense. Later, after the commotion, and lying there with two warm and freshly killed food items close by, it was more than even a shedding rattler could pass up, and so the two quail were swallowed. Needing to elevate his body temperature to begin digestion, the once lucky, now hapless rattlesnake traveled the short distance to the top of the ground, where he died as violently as his victims, by means of a bit of "lead poisoning" that was intended for the quail.

Editor's note: A special permit is required to possess any venomous reptile.

D. Bruce Means, Ph.D., is the president of Coastal Plains Institute, adjunct professor in biological sciences at Florida State University, and a Smithsonian Research Associate. He teaches a college course on uplands and wetlands ecology and is currently writing a book on these subjects.

1990-91 Florida Waterfowl And Turkey Stamp Contest Winners

By Mary M. Davis

They say you see the world anew when you view it through the eyes of youth. That's how Commissioners with the Florida Game and Fresh Water Fish Commission felt when they selected artwork by two talented young artists to be featured on the 1990-91 Florida Waterfowl and Turkey stamps.

An almost lifelike painting of a male and female wood duck won top honors in the Waterfowl Stamp competition. The artist is Ben Test, 28, from Guymon, Okla. Although Test holds a degree in commercial art from Southwestern Oklahoma State Univ., he has been drawing and painting wildlife since his elementary school days. He said his art lessons began as soon as he could run and keep up with his father, Jack, and his older brother, Byron, on hunting trips into the prairie. Coincidentally, Byron Test won the competition last year.

Art work by 24-year-old Eddie LeRoy of Eufaula, Ala. was selected for the 1990-91 Turkey Stamp. LeRoy's painting of turkeys flying off a roost is different from most artwork featuring turkeys, as artists usually depict turkeys strutting or walking. "I wanted to come up with something different for those who have collected past turkey stamps, something that would stand out from the rest." LeRoy studied commercial art at the Art Institute of Atlanta and has worked as a professional artist for three years.

To obtain prints of the 1990-91 Waterfowl and Turkey Stamp contest winners, please contact the artists at:

Ben Test
c/o Cottonwood Gallery
406 E. 4th Street
Guymon, OK 73942

Eddie LeRoy
Wildlife and Commercial Artist
Rt. 1, Box 344B
Eufaula, AL 36027

WILLIAM A. GREER

Wood Ducks by Ben Test

WILLIAM A. GREER

Turkeys In Flight by Eddie LeRoy

"Jeweled," a snowy egret.

Myakka River Scene

wildlife artist David Bollman

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

— Aldo Leopold, ***A Sand County Almanac***

The writings of the noted conservationist, Aldo Leopold, helped to shape David Bollman's philosophy and commitment to his wildlife art. As a youngster, David began his artistic training by making notes in a journal and illustrating what he saw in his encounters with Michigan's abundant wildlife.

Bollman's interest in wildlife never waned, and he earned a Bachelor of Fine Arts degree and also became an accomplished taxidermist. Years of taxidermy work and formal art training enhanced his ability to capture anatomical accuracy in his sculptures and his realistic paintings.

He is equally proficient in portraying the whimsical expression in a dog's eyes, capturing the stately gait of a yellow-crowned night heron stalking its prey, or depicting a graceful egret flying over a tranquil river. His realistic paintings of sporting dogs won him the title of "*Michigan Outdoors* Wildlife Artist of the Year" for two consecutive years. Successful renditions of a variety of wildlife brought him a commission by the National Wildlife Federation and numerous art show awards, including second and third place in recent *FLORIDA WILDLIFE* cover art competitions.

Bollman appreciates Florida's diversity of wildlife and likes to heighten the public's awareness of these priceless resources and the fragile ecosystems in which they live.

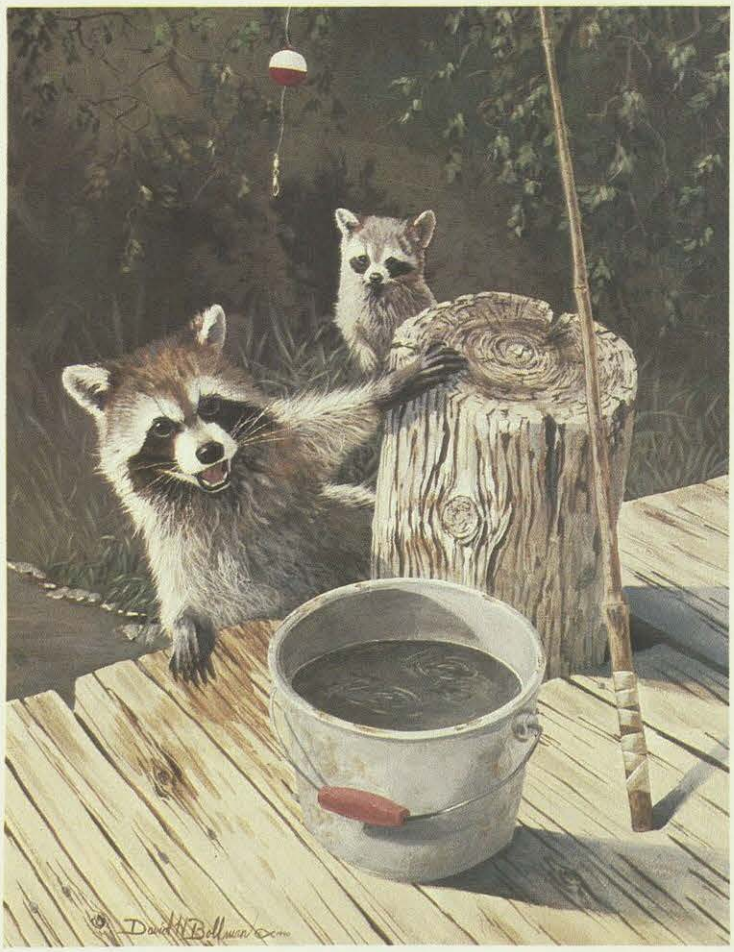
"Wildlife artists have a unique opportunity and even an obligation to share their knowledge of nature with others. Being accepted as fine artists allows us to share the celebration of life with art collectors and influential people. I feel that I can help promote wildlife conservation by exposing people to the need to preserve and enhance this inherent natural resource for future generations.

"Regardless of where you live — whether north or south, city or country — we can find pleasure from wild places and things. Leopold says we must use our 'split rail mentality' to find pleasure, as well as wisdom, from nature," he said.

He strives to capture that certain intensity of color and light that is so special in Florida. "I find dramatic scenes whether I'm walking the beaches or canoeing rivers," he added.

A beach walk in Venice one misty morning provided the inspiration to create "Jeweled," the ▷

Yellow-crowned night heron.



A pair of curious raccoons.

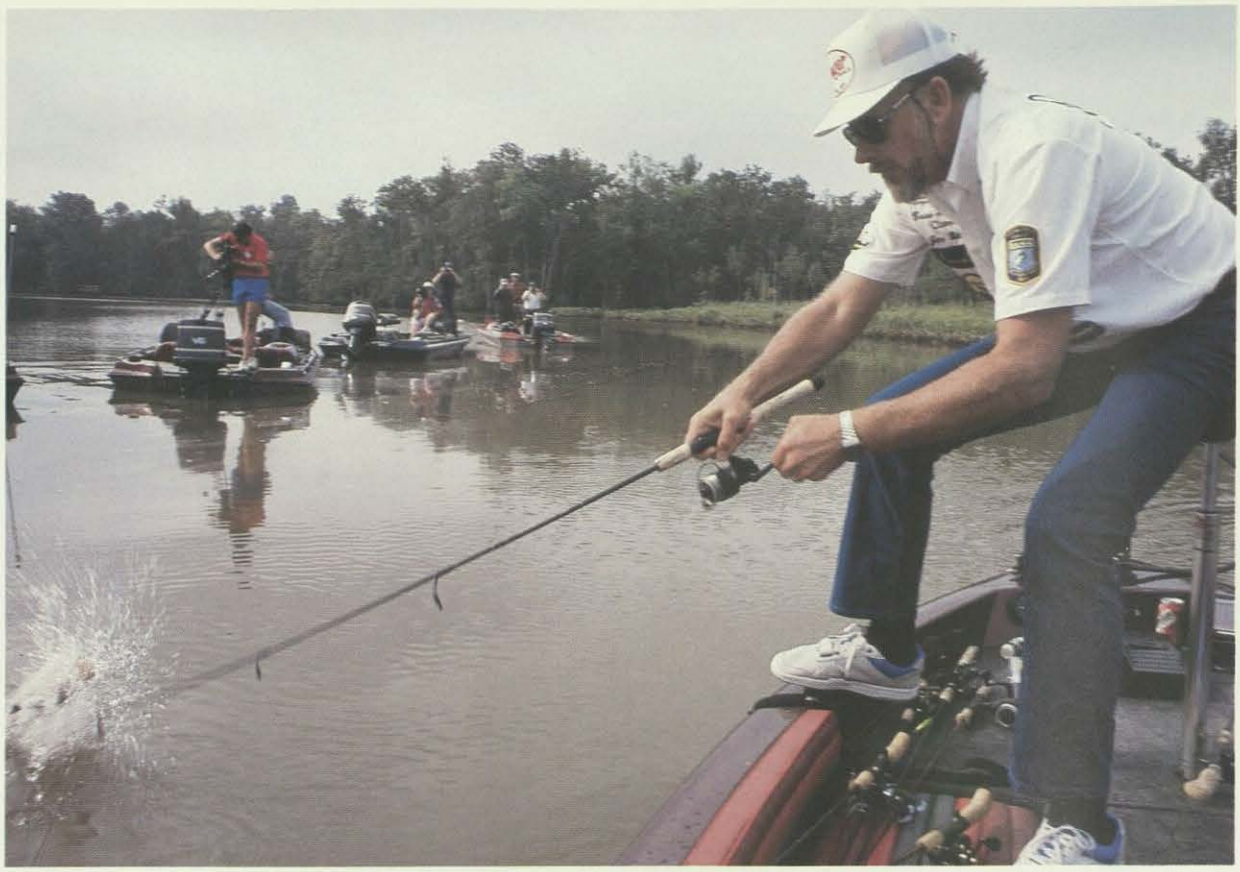
atmospheric rendition of a lone snowy egret. He encountered the curious pair of raccoons during an excursion to Jonathan Dickinson State Park. Peaceful canoe outings on the Ochlockonee, Loxahatchee and Myakka rivers brought him in contact with an abundance of wildlife, and have resulted in sketchbooks filled with field observations.

"I carry my sketchbook with me when I travel — it's just like picking up my wallet. I'm really a mobile artist and have painted from one end of Florida to the tip for the last 20 years. Several of the landmarks where I used to paint have been lost to tourist attractions and other developments. Yet, I have fond memories and look forward to my future, painting the magnificent wildlife of Florida."

— Andrea H. Blount

Doe with wild iris.

Golden retriever with pup.



Professional Fisherman
JIM BITTER

Text and photographs by Tim Tucker

The bass that had inhaled Jim Bitter's grape-colored plastic worm was nothing special to look at and had not put up much of a struggle.

After quickly unhooking the small fish, the Fruitland Park tournament pro and Harris Chain fishing guide headed for the rear livewell when, impulsively, he decided to measure the bass to ensure it was 12 inches long (as required in this event). Placing the measuring stick on top of a large black tackle box, Bitter quickly sized the fish and, was about to put it away for safe-keeping when the unexpected occurred — a slow-motion moment that will be recorded forever in his fishing memories.

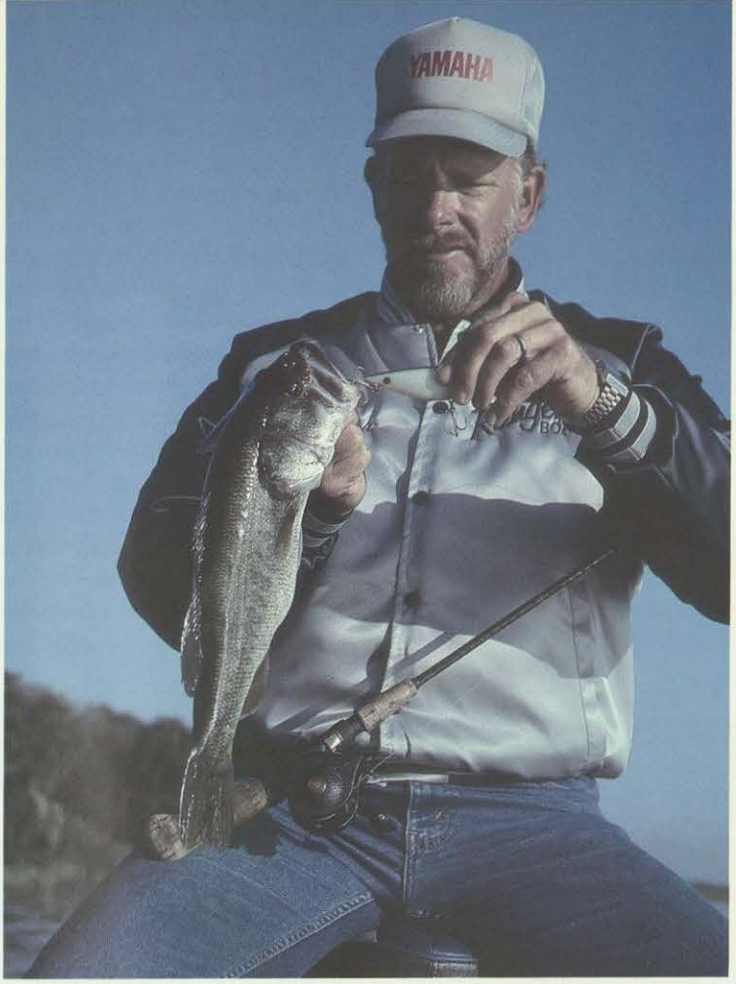
On its way to the livewell, the fish somehow slipped from his grasp, landed on the lid of the tackle box and bounced into the water. "I've never done anything that stupid in my life," Bitter recalled. "I didn't deserve to win the tournament after that."

Although he had no way of knowing it, that scene, which was later replayed on national television before several million viewers, cost Bitter the Bass Anglers Sportsman Society (BASS) Masters Classic championship, the $50,000 top prize and much more. The most prestigious title in fishing, the Classic crown can mean as much as $500,000 in earnings from endorsement contracts and speaking engagements.

Jim Bitter missed his chance at fishing immortality by a mere two ounces — much less than the weight of the 13¼-inch bass that never should have gotten away.

"I figured it up," Bitter said a couple of months later while working a top-water plug along a shoreline in Lake Harris. "I handled probably 20,000 fish while working for the Florida Game and Fresh Water Fish Commission and I never lost a fish over the side. Nice timing, huh?"

From 1974 to 1986, Bitter worked as a fish management specialist for the Commission, handling field duties, such as population sampling, with biologists on the Harris Chain of Lakes. This part of his fishing education



Above: Bitter unhooks a bass caught while cranking a dock. Left: Bitter lands a bass in Virginia's James River on the final day of the BASS Masters Classic.

certainly helped mold him into perhaps the most successful tournament angler in Florida.

After winning numerous tournaments at the club and local levels, Bitter won five of the first 20 Red Man events held in Florida. In addition to winning the state points title in 1986, Bitter caught more weight than any fisherman in any Red Man division in both 1985 and '86. At that point, Bitter began fishing the BASS circuit — the major league of bass tournaments — and cashed a check in six of the first 12 contests he entered.

In the 1988-89 season, the 46-year-old bass pro joined the nation's elite anglers by winning the most lucrative event in competitive fishing — the BASS MegaBucks Tournament. This event, held on the Harris Chain of Lakes, provided him a check for $108,000. In his first full year on the national circuit, Bitter went on to qualify for the highly competitive Classic, where he was the undisputed leader for two days before accidentally releasing the winning bass under the gaze of more than 100 media representatives.

Given his overall success in Florida and with the MegaBucks tournament in particular, Bitter is often asked how much of an advantage he accrued by spending almost 13 years in the field with Commission biologists.

"It's not the big advantage that everyone assumes, but it did teach me some things about bass," Bitter replies. "The biggest advantage comes from all of the (electro) shocking I was involved in over the years. We did a lot of shocking in all kinds of weather, and that taught me a lot about fish movement.

"A prime example was cold fronts. We shocked before, during and after a cold front, and we found that fish stayed in the same places right on through all three phases. Yet, most fishermen think that when a cold front comes through, the fish swim away and head for deep water. But I know that's not true in Florida. A cold front usually shuts them down and they don't bite much. But the fish will still be on the shoreline. They don't go anywhere."

As Florida bass fishermen go, Jim Bitter has always been a little unorthodox.

Although the times are changing, Sunshine State anglers have, for years, limited themselves to a couple of standard lures and techniques for catching bass. This approach has limited their success, according to Bitter. And it has allowed an inquisitive Bitter to dominate tournaments in the state. Bitter is proving that catching bass consistently in Florida involves more than working a plastic worm, weedless spoon or Rat-L-Trap-type bait in the shallow vegetation.

Bitter was among the first Florida fishermen to recognize the applications for crankbaits, the deep-diving plugs that seem better suited for deep-water lakes and reservoirs of other climes. By using these baits in shallower areas than they were designed for, Bitter catches a considerable number of bass that have grown to ignore the usual offering of plastic worms and spoons. And he has been able to take advantage of some open-water bass that have generally gone unmolested for years.

"I've always believed that fishermen in Florida really limit what they can catch by fishing the way their fathers fished," Bitter said. "A plastic worm is an excellent bait, but the angler who is versatile enough to use all types of baits is the one who is going to catch fish consistently in Florida and everywhere else."

As a result of his exposure to a diversity of bass waters throughout the country, Bitter has begun to score with other lures and techniques that are relatively unknown to Florida fishermen. That includes surface lures and the shallow-diving, minnow-shaped lures commonly referred to as "jerkbaits."

For top-water fishing, Bitter concentrates on water depths in the 6- to 10-foot range with submerged vegetation or brush. His favorite ▷

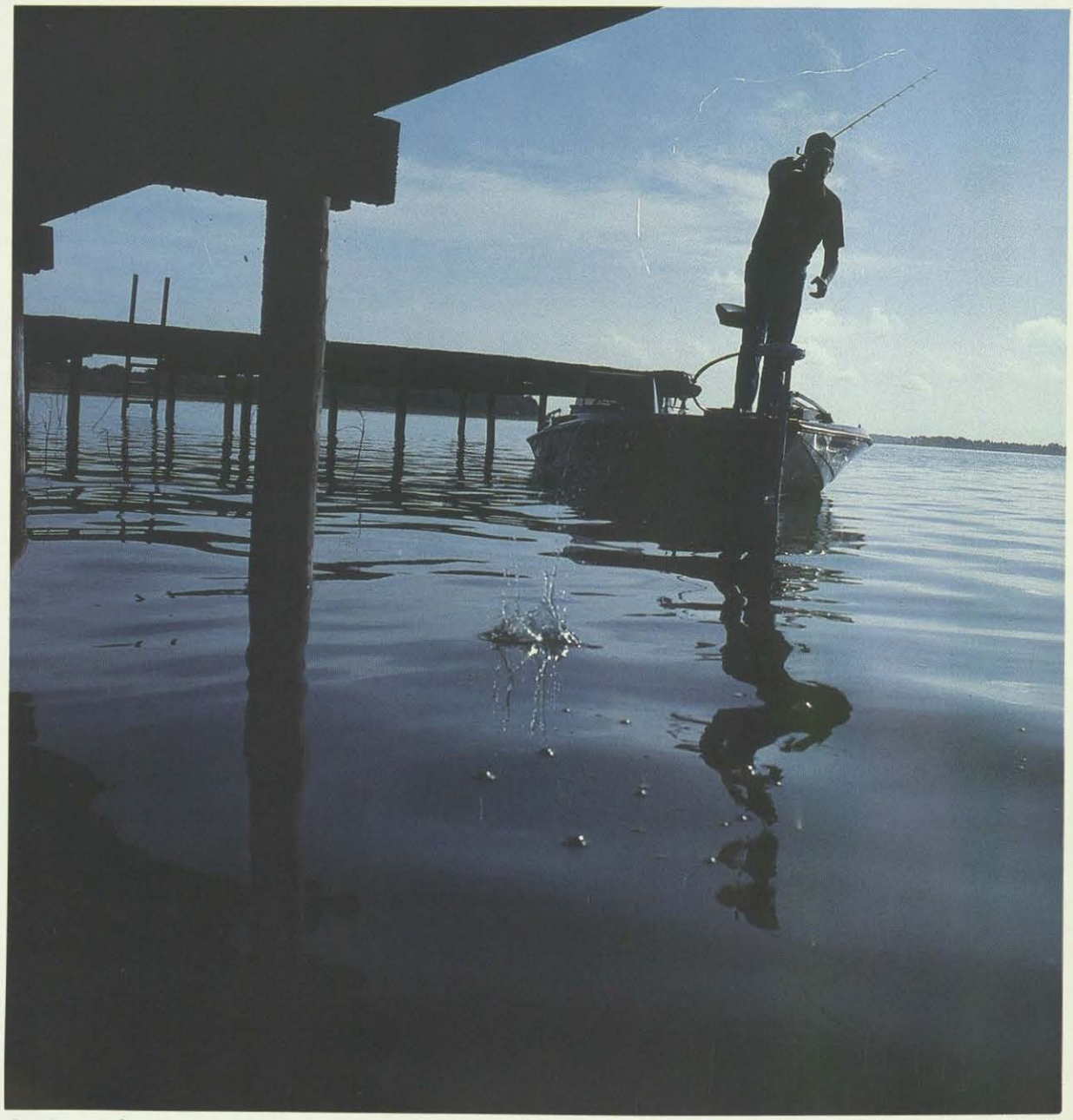
surface lure is a small Devil's Horse, a bait that he has used to win tournaments on the Kissimmee Chain and Lake Okeechobee (as well as a fourth-place BASS finish on the "Big O").

Jerkbaits are a foreign tool for most Florida anglers. Capable of reaching depths of 7 to 9 feet, these minnow baits are difficult to cast and tiring to work. But they provide a tantalizing sub-surface wobble and baitfish shape that is certainly attractive to bass, particularly big bass. Bitter demonstrated the attraction of jerkbaits by using a Smithwick Rattlin' Rogue to catch enough bass to win the MegaBucks tournament during two of the coldest days of the year.

"There have been some people experimenting with jerkbaits on this (Harris) chain since I won MegaBucks last year," Bitter said. "But it takes a lot of work to master those baits and you have to be in good shape to fish one all day. If you just throw one of these baits occasionally, you're probably not going to catch any fish on it. You have to throw it and throw it until you get into an area where the fish are holding, and then you can catch your limit in short order."

Jerkbaits have become Bitter's No. 1 "search bait," the lure he uses to locate fish.

Another lure that is becoming a more important part of Bitter's arsenal is the rubber-skirted jig, which is teamed with either a pork chunk or plastic crawfish imitation. Because of the weedy nature of Florida's lakes, the jig-and-pig has never been a primary weapon in this state. But Kentuckian Corbin Dyer demonstrated the appeal of the bait in a 1985 BASS tournament on Lake Okeechobee when he caught a five-bass, 31-pound stringer on the jig-and-pork combination.



Jim Bitter adeptly casts a crankbait beneath a boat dock.

Perhaps the premier trophy bass lure in other states, the jig-and-pig is one of Bitter's favorites when fishing around vertical vegetation like bulrushes, cattails and lily pads.

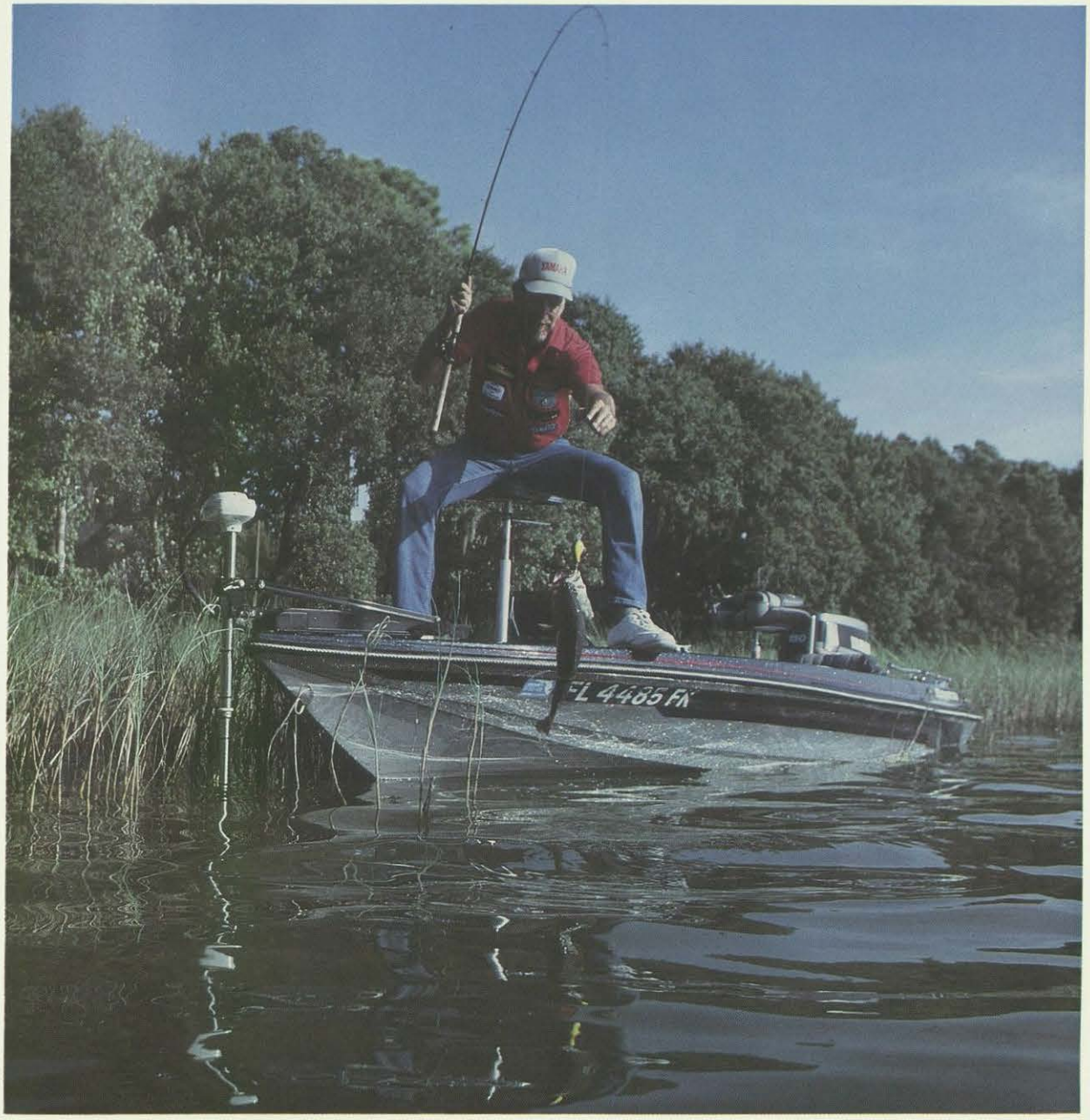
But the plastic worm remains a force for Bitter, who is a master at making these colorful pieces of plastic undulate in lifelike fashion. Unlike many anglers, Bitter prefers to keep bass-fishing uncomplicated and isn't hung up on colors when it comes to worm fishing. He uses either a 6-inch grape- or junebug-colored worm for almost all applications.

Despite his quick rise in the competitive fishing world, Jim Bitter could never be confused with the ultra-serious tournament pros who dominate his sport. Perhaps that is the key to his success.

"I think I was born with a knack for catching fish," he said. "I've been catching fish all of my life at various levels. When I was a kid, I seemed to catch more fish than the other kids. And it continued from there.

"It's not something that I worked at. I don't work real hard at trying to better myself as a fisherman. I just go fishing. That's basically been my attitude throughout my career. To me, it's really just a game. Every time I find myself getting a little nervous or concerned, I remind myself that this is a game that kids play. That works for me."

Tim Tucker is the outdoor editor for the Palm Beach Post newspaper and senior writer for several national magazines. His newest book, ***Advanced Shiner Fishing Techniques****, is available for $11.45 postpaid from Tim Tucker Outdoor Productions Corporation, Rt. 2, Box 177, Micanopy, FL 32667.*



Bitter was one of the first Florida anglers to successfully use deep-diving crankbaits.

BOB MCNALLY

Trolling Lipless Crankbaits For BIG BASS

By Bob McNally

Savvy anglers everywhere know the effectiveness of the little "lipless" shad-like lures. Now a deadly new technique has evolved for using them.

What started two springs ago as a frivolous fishing fling for a paltry few anglers turned into a deadly fishing technique with a fanatical following by late summer. The concept is so simple that many sophisticated anglers refused to try it — until the bass-catches made its effectiveness irrefutable.

"Basically, all the fishermen do is troll along the edges of weeds and flooded cypress knees with lipless crankbaits, and they catch bass, lots of 'em. And they're big," said Ernest Wigglesworth, owner of McGilvray's Fish Camp on 4,000-acre Newnans Lake, near Gainesville. "For years, a lot of our best fishermen have been catching our big bass with small, lipless crankbaits that imitate shad, like 'Rat-L-Traps,' 'Sugar Shads' and 'Spots.' But often they'd cast all day and boat just three or four fish. They'd cast hundreds of times some days to land that many bass, and that got some of our regular anglers thinking about a better way of fishing the same lures in the same places where they caught bigmouths."

A handful of Newnans Lake fishermen discovered that trolling lipless lures along the lake's shoreline edges was one of the most deadly methods of catching Florida largemouths to come along in years.

Anglers tried to keep the technique quiet, but large catches of big bass got plenty of attention on Newnans. So many weighty catches of stout bass became commonplace during the hot, broiling days of late spring and summer — a time when many Florida anglers have trouble catching *any* decent fish — that newspaper reports of such catches ran almost constantly.

Popping or flipping rods make for less strenuous trolling.

Lots of 6- to 11-pound largemouths were caught from Newnans by trolling the lures. Most fishermen using the technique worked from small tiller-outboard-operated aluminum skiffs, many of them rental boats. But, as anglers owning large bass boats learned of the success of the technique, they tried it with their hefty, sophisticated rigs and big outboards. And they caught fish, too.

Naturally, as the technique caught on with anglers, it spread to other Florida waters. Soon anglers were making big catches of heavyweight largemouths by trolling lipless crankbaits on Rodman Reservoir, Lake George, the St. Johns River, the Harris and Tsala Apopka chains of lakes, many small lakes in the Ocala National Forest, famed Lake Kissimmee and West Lake Tohopekaliga. By late summer, trollers working lipless lures were scoring well on largemouths as far south as Lake Okeechobee and as far west as Lake Talquin. Some anglers exported the technique to Georgia, finding success in the Peach State's bass-rich rivers and impoundments such as Clark Hill Reservoir, Lake Lanier and Lake Blackshear.

Clearly, trolling lipless crankbaits has made its mark in bassdom and is a proven method meant to be a mainstay with Florida bass anglers. The trolling technique also caught plenty of striped and hybrid bass, even crappies, pickerel, mudfish and *catfish*!

Like most effective fishing techniques, trolling lipless crankbaits is simple or complicated, depending on how much an angler intends to work at the method.

To the occasional fisherman, trolling lipless lures is a "no-brainer" method of catching plenty of good-size fish. Anglers simply tie on the lures, flip them behind the boat, and head off — catching bass and most anything else that gets in the way. For the sophisticated angler, trolling lipless lures takes consummate skill and attention to detail. It requires manipulating many trolling nuances, any of which can bring additional success to any day on the water. ▷

PEGGY PERKERSON

An assortment of crankbaits (courtesy of Jackson Sporting Goods, Tallahassee).

Seasoned bass anglers quickly recognized that trolling lipless lures along shoreline cover and over submerged weedbeds like hydrilla and coontail moss was the fastest way to check for largemouths. Trolling the lures is also deadly around riprap, bulkheads, pier pilings, bridge abutments and other shallow structures. And it's a *fast* method of fishing. Speed in working such areas is especially important during hot or bright weather, since under those conditions the bulk of the best bassin' is at daybreak and dusk. So, the quicker an angler can cover a lily pad-lined or cypress-tree-studded shoreline, the sooner he can find feeding fish during the optimal angling hours of the day. On days when bass are finicky and scattered, trolling crankbaits results in more fish per hour.

Lipless crankbaits are ideal for shallow-water, Florida bass fishing for several reasons. The baits are shaped like the primary forage of Sunshine State bass: shad and shiners. Also, slow-sinking lipless lures tend to "plane" during trolling, rather than dive deep like crankbaits with "lips." So with lipless lures, Florida fishermen are able to quickly check very shallow, weedy, cover-filled waters where diving, lipped crankbaits foul fast. During a typical trolling pass with a lipless lure, an angler would speed up to get his plug over a "high spot" in hydrilla, but would slow down his trolling speed and allow his lipless lure to "fall" a bit when he checked deeper water or the drop-off of a weed bed.

A lot of important refinements in trolling lipless lures have been made by skilled anglers in a very short time. For deeper trolling, some people modify their lures by adding slip-sinker weights ahead of the lures. They use bullet-weights up to one ounce, slipped onto the fishing line, and tied to a barrel swivel. The lure is attached on a 2- to 3-foot leader connected to the opposite line-tie ring of the barrel swivel. Some anglers drill holes in lipless crankbaits, then fill them with split-shot weights or allow them to fill with water during fishing. This makes lures heavier, so they sink deeper during trolling.

For *very* shallow trolling, some fishermen use streamlined, cigar-shaped cork floats ahead of lipless crankbaits, which makes them run just a few inches under the surface. This proves deadly when fishing slightly submerged hydrilla, the prime forage areas for giant largemouths. Many anglers working dense weedbeds also remove the forward treble hook of a lipless crankbait, and replace the rear treble with a single, short-shank hook, or sometimes with a wire weed-guard hook model. This greatly reduces lure-fouling in cover. For many anglers, this results in more boated bass because once a fish is hooked, it is less likely to tangle loose hooks in grass, logs or brush.

Trolling lipless crankbaits is basically a shallow-water technique, since the lures do not dive down or "bump" the bottom like other crankbaits. Bottom-bumping crankbaits have been the mainstay of many trollers for decades, so the use of "free-swimming" plugs for trolling is looked upon dubiously by some veteran fishermen, especially anglers skilled at "spoonplugging" and structure fishing. But even spoonplugging guru Buck Perry of Hickory, N.C., the man generally credited for starting deep-water structure fishing, endorses trolling free-swimming lures.

"Bumping bottom is of paramount importance to consistent bass fishing success whenever lures are used in deep water, about 8 feet or more," Buck stated. "But in the shallows, it's a whole new ball game because the fish are generally more active, more aggressive. A 'free-swimming' lure can therefore be deadly, especially when trolled along the edges of cover."

Many of Buck's spoonplugging trolling techniques have proved effective when working lipless crankbaits. Buck feels that lure speed is vital to success, as Johnny Jacobs of Tallahassee learned first-hand during a summer of trolling lipless crankbaits.

BOB MCNALLY

"I make a habit of trolling fast, then slowing down, then trolling fast, when working lipless lures," he said. "Some days bass want the lure fast, really ripping along, faster than I ever could crank 'em with a fast-retrieve reel. Other days they want 'em slow, or some speed in between. Sometimes while trolling along deep weed edges (6 to 8 feet), I've stopped the boat to let the lure sink all the way to the bottom. Then I goosed the motor throttle and ripped it off the lake floor. I've caught some big bass that way, including an 11-pounder from the edge of a Lake Jackson lily pad bed."

Some very successful anglers "pump" their rods when trolling lipless lures. By pulling, yanking or pumping the rod irregularly, the angler is imparting an extra bit of darting-and-falling action to the trolled plug. Pulling on the rod gives the lure a spurt of speed and moves it up and forward during the troll. Dropping the rod tip back down slows the lure's forward progress, so it falls. When the line comes tight again due to the forward speed of trolling, the lure zips back up again. This zigzag, saw-toothed lure pattern during trolling can be deadly on bass because it triggers them into striking instinctively.

During the dog days of summer, try a quick change in your rod angle or boat path to trigger bass into hitting.

A quick change in rod angle or boat path also can trigger bass into hitting, especially during the dog days of summer. The theory behind this trolling tactic is that frequently, bass follow the lure, sort of "eyeballing" it, deciding whether to strike or not. But a sudden, darting change in the lure's direction elicits an immediate strike from the bass. It literally "triggers" the bass into striking, keying on the fish's predatory instinct. The same triggering instinct also frequently occurs when anglers "speed-troll" lipless lures. A crankbait ripping along at break-neck speed causes bass to hit the lure instantly without allowing it time to look over the lure like it could a slow-moving plastic worm or topwater plug. The fish simply reacts — striking out of reflex, particularly if it's lying in ambush in the edges of heavy cover such as weed beds, stump flats, submerged brush, or undercut river banks.

Some fishermen troll two plugs when working cover edges. The lure trolled closest to the cover is a small, lightweight one used with heavy line. This lure will run shallow or high because of its light weight and heavy line. The heavy line (often 20-pound) also is needed to horse bass from the nearby thick cover edge. The trolled lure on the "outside" of the boat is larger and heavier, and is used with light-test line (10-pound). The heavier lure used with lighter, less-resistant line runs deeper. Heavy line isn't as important on the deep-water side of the boat because it's usually far enough away from the trolled cover edge that striking bass need not be "horsed." ▷

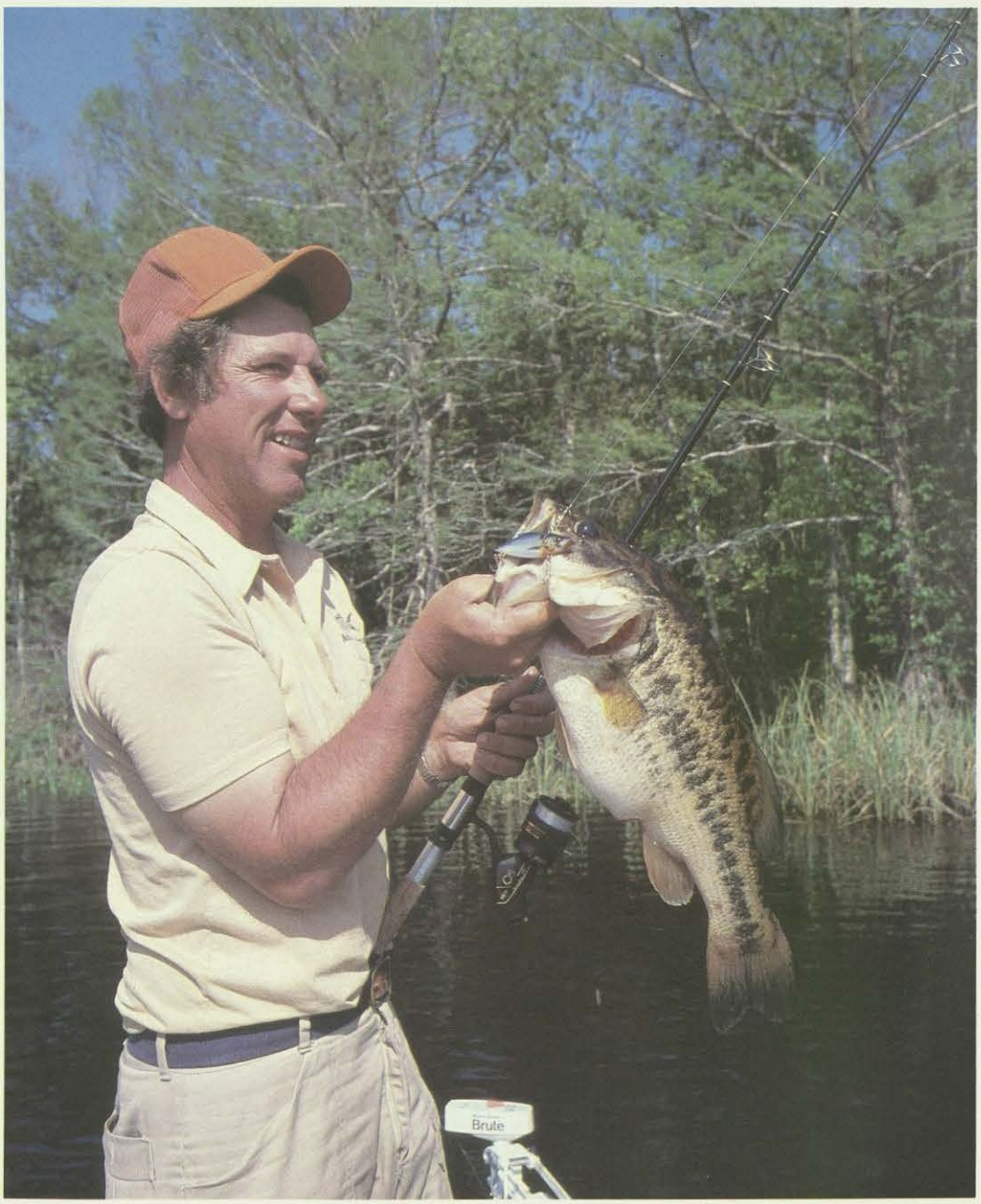
While many trollers prefer using standard, short, stiff-action "worm rods," some anglers have learned that long "popping" or "flipping" rods are effective. Longer rods let anglers work trolled plugs better around cover edges, as well as allow them to keep trolled lines well away from motor propellers. Also, the long handles of popping and flipping rods make for less strenuous trolling because the rod butts can be held easily with two hands, or the handle can be rested against the angler's knee or boat console for support.

There is no question that trolling the lures is effective in most bass waters. Weedy or brushy shallows where bass feed or station themselves to ambush prey may be prime lipless lure trolling waters.

Recently, some anglers have started trolling small, lipless crankbaits deep and slow for fall-winter black bass. The little lures have proved very effective when allowed to vibrate slowly along deep, sunken roadbeds, creek channel edges, underwater humps and similar structures. They enable anglers to make a quick check of such deep structures for feeding bass, which was the original purpose of the technique.

No one is yet saying that trolling lipless crankbaits is a sure cure for all anglers' fishing ills. But as another effective tactic in a fisherman's arsenal of bass-catching skills, the method can't be disputed.

Bob McNally is the outdoor editor of The Florida Times-Union newspaper and a regular free-lance contributor. His fishing, hunting and recreational articles also appear in numerous national outdoor magazines.



BOB MCNALLY

BARRY MANSELL

URBAN FISHING

By Mark Trainor and Dylan Jones

If you're looking for an out-of-the-way spot to do some fishing...one that's open to the public, where you don't need a boat and, if you live in the Jacksonville area, you're in luck.

A cooperative urban pond project, started in 1976 between the Florida Game and Fresh Water Fish Commission and the Jacksonville Recreation and Parks Department, established 116 acres of public fishing at nine ponds scattered throughout Duval County.

The ponds range in size from 2 to 27 acres, have excellent boat access and well-maintained shorelines for bank fishing, and are open 365 days a year.

"The project is the only one of its kind in the southeastern United States," according to Jerry Krummrich, the Commission fisheries biologist who oversees projects in the northeast region. "The urban fishing program began over a decade ago in response to Jacksonville residents who were seeking more freshwater sportfishing opportunities."

In this cooperative endeavor, the Commission provides fisheries management, and the Jacksonville Recreation and Parks Department ensures ground maintenance at the pond sites.

According to Krummrich, the ponds offer unlimited fishing for naturally reproducing sportfish such as largemouth bass, bluegill, redear sunfish, black crappie and bullhead catfish. In addition, channel catfish and sunshine bass are stocked by the Commission because they normally do not reproduce in the ponds.

Since all the ponds in the project are designated fish management areas (FMAs), every angler over age 16 must have a freshwater fishing license.

Here's a look at the nine ponds that make up the Jacksonville Urban Pond Project.

The Pope Duval ponds (East and West) are both borrow pits with good boat ramps and brush-pile fish attractors, and are located "in the woods" west of Jacksonville, four and one-half miles east of Baldwin, south of U.S. 90.

The 10-acre West Pond is a favorite among largemouth bass fishermen. Anglers using spinner baits have caught good numbers of big bass, including a 16-pound largemouth bass caught two years ago. As in all ponds in the project, largemouth bass under 16 inches in length must be released.

The 13-acre East Pond averages only 5 feet deep and has some of the best crappie fishing of any of the urban ponds. Crappies are caught around mid-lake brush piles. Bream, channel catfish and brown bullheads are plentiful, too. This pond has an irregular shoreline and is equipped with seven automatic, floating fish feeders that concentrate fish to locations easily accessible to bank fishermen.

The 6-acre Oceanway Pond located on Jacksonville's north side, east of Palm Ave. and south of New Berlin Road, provides some of the best bream fishing in the project. Anglers are especially successful if they use wasp larvae for bait, since it is similar in size to floating catfish food pellets. Oceanway has four fish feeders as well as numerous brush-pile fish attractors. Oceanway produces good catches of crappie and has fair bass fishing.

A bank fisherman's delight is the 11-acre Lee Adams Pond, located on the north side of Normandy Boulevard between Cecil Field and Chaffee Road.

This pond has the best bank fishing of any in the system. The pond offers bluegill, crappie and largemouth bass. Two years ago the pond yielded a 13-pound largemouth. Crappie fishing in this pond is considered very good. There are many brush-pile fish attractors in this pond and water depths that ▷

range from 12 to 14 feet, with holes to 17 feet. A mid-lake island provides good fishing for anglers taking the initiative to launch small boats or canoes.

Lee Adams Pond is a privately owned area with access provided through an easement. All other urban ponds are owned by the city and are located in Jacksonville parks.

The largest of all the ponds, Hanna Park is a naturally fertile borrow pit and an excellent producer of sunshine and largemouth bass. This 40-acre pond is located in Hanna Park on the beach at Mayport in northeast Duval County.

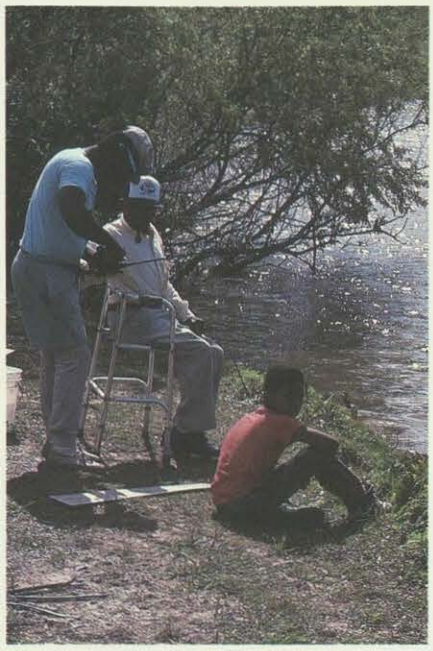
The Commission has stocked sunshine bass in this pond for many years and has observed outstanding growth due to the abundance of shad forage. Sunshines up to 10 pounds have been caught on shad-imitating lures.

Most sunshine bass are caught from the larger 27-acre portion of this water body, which is up to 20 feet deep and has six floating fish feeders and brush piles. The remaining 13 acres are narrow, tree-lined, finger-shaped ponds. Both provide good strings of bream, largemouth bass and brown bullheads.

The 18-acre Bethesda Pond offers excellent largemouth bass and fair crappie fishing. The pond is located near the north campus of Florida Community College off Capper Road, south of Dunn Avenue, east of I-295 and west of Lem Turner Road.

Bethesda has 18 fish feeders, numerous brush piles and offers great sunshine bass, bream, crappie, bullhead and largemouth bass fishing. Bream weighing 2 pounds have been caught around brush piles and at dropoffs in the lake's northeast corner. Many bream are caught by anglers who cut hot dogs into the size of fish food pellets.

Two ponds make up the St. Augustine Road FMA. They can be found south of St. Augustine Road and east of Stetson Road. The smaller 4-acre North Pond has steep banks and depths to 20 feet. There are three fish feeders on the pond which attract crappie and bluegill.



BARRY MANSELL

St. Augustine Road Pond anglers.

Because the 12-acre St. Augustine South Pond is the most readily available to urban fishermen, it receives the most fishing pressure for catfish of any pond in the project. There's active catfish, crappie and bream fishing near the six fish feeders on this pond. St. Augustine supports a good population of largemouth bass weighing 6 to 8 pounds.

The newest area in the project is Huguenot Pond, a small 2-acre pond located in Huguenot Park in Jacksonville Beach. This is an ultra-urban pond surrounded by basketball and tennis courts and beach motels. Huguenot Pond is being managed to provide good bream fishing.

For a brochure on the Jacksonville Urban Pond Project, contact the regional office of the Florida Game and Fresh Water Fish Commission at RFD 7, Box 440, Lake City, FL 32055, or call (904) 758-0525. Jacksonville area residents may call toll-free 353-6331.

Urban Pond Management

- Should the pond be deepened?
- Is there adequate public access for bank fishing?
- What kind of fish population is present, and should additional sport fish species be stocked?
- Should the pond be limed and fertilized?
- Does the pond have vegetation problems?
- Do periodic fish kills occur?
- Will supplemental fish feeding be beneficial?
- Is the existing water quality optimum for continued fish growth?
- Does the pond have stormwater runoff problems?

According to biologist Jerry Krummrich, "Answers to these questions will determine which fish management practices will result in quality fishing experiences for urban anglers."

In the project's earlier years, selected waters were simply managed as fertile farm ponds to provide good fishing. That is, biologists improved fertility by liming and fertilizing the ponds. Vegetation, which interfered with bank fishing, was controlled and fish attractors were installed to concentrate fish in areas where they could be caught easily. Finally, channel catfish and sunshine bass were stocked.

"With increased fishing pressure on the ponds now, new strategies have been developed to further enhance fishing," Krummrich said.

These strategies include: feeding fish with automatic feeders, multiple stocking of harvestable-size channel catfish and fingerling sunshine bass, and the use of electric aerators to circulate and oxygenate water to prevent fish kills.

Fishing pressure on these small, urban ponds is extremely high. For example, in 1988 the total fishing effort from St. Augustine Road South and Pope Duval East ponds,

which average only 12.5 acres was 2,485 hours per acre per year.

In 1989, the hours spent fishing on seven ponds averaged 1,952 hours per acre per year. The total annual fishing effort was 144,451 man/hours on 74 acres of surveyed water.

"In contrast, Lake Kissimmee, one of the state's most well-known and productive fishing spots, received only 11 hours per acre per year of fishing pressure," Krummrich said. "Of course, Kissimmee is a 40,000 acre lake while the Jacksonville ponds average only 13 acres."

In 1988 Commission biologists experimented to improve fishing success by stocking 8- to 10-inch channel catfish into Pope Duval East and the St. Augustine Road South ponds. Each month from January through June, Pope Duval was stocked with 1,950 catfish while St. Augustine Road Pond got 1,800 catfish.

"The goal of the project was to determine how long stocked catfish remained in a pond open to public fishing and how much weight they gained before being caught," he added.

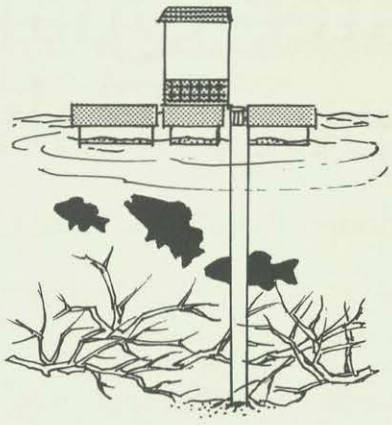
The experiment revealed that the time between the stocking of channel catfish and the time they were caught was an average of eight weeks. During that same time span the average individual weight gain was 10 percent over their original stocking size and some fish doubled in size. The growth is credited to an experimental fish-feeding program at the ponds.

The "put-grow-take" stocking program is the first of its kind in the state and likely in the nation, Krummich said.

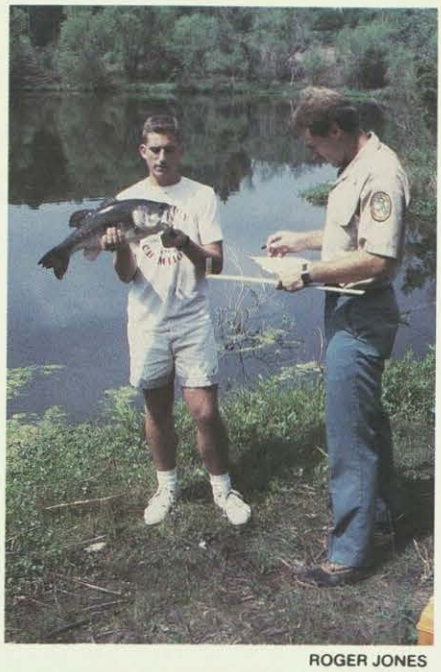
This stocking program will expand to six ponds in 1991. Plans call for the stocking of 150 catfish per acre in February, April and June to provide a steady stream of catfishing for urban anglers.

— Mark Trainor

Mark Trainor is a public information specialist in Tallahassee. Biologist Dylan Jones oversees the Urban Pond Project.



Artificial feed-and-brush piles concentrate fish.



Biologist Dylan Jones measures a big ▷ catch.

ROGER JONES

The Urban Pond Program

For 13 years the Jacksonville Urban Pond Project has provided city fishermen a chance for "tight lines and good fishing" within a short driving distance from anywhere in the city.

The urban ponds are extremely popular with city fishermen for a number of reasons. The ponds are close to home and have excellent bank fishing access 365 days a year. But the bottom line is they provide urban dwellers outstanding sportfishing opportunities they previously didn't have.

"The project has been a tremendous success," said Dylan Jones, the Commission fisheries biologist who oversees the project. "We are now at a point where more ponds can be added to the project over the next several years."

The project recently expanded and now includes nine ponds totaling 116 acres at seven locations scattered throughout Jacksonville. In addition, the Commission is planning to implement similar projects in West Palm Beach, Orlando and Tampa in the near future.

"The growth of the Jacksonville project and future statewide expansion rely heavily on monies from the federal Wallop-Breaux Fund that went into effect in 1984," Jones said.

The Wallop-Breaux Fund is an amendment to the Dingell-Johnson Act. Simply put, the Wallop-Breaux Fund consists of a 3 percent federal excise tax on fishing and boating equipment. The tax is collected from fishermen and boaters, and is annually distributed back to the states for fisheries enhancement and restoration projects.

"The impact of Wallop-Breaux money coming back to Florida to enhance the Urban Pond Program has been a windfall," Jones said.

In the early years, for example, the project survived on a $2,500-a-year contribution from the City of Jacksonville for pond management. This year, Wallop-Breaux funds to the project are expected to exceed $80,000.

— Mark Trainor

Water Quality for Sport Fisheries

By Homer Royals and Brad Cook

Water quality — quality water — it is so vital to our environment, yet commonly taken for granted by many sport fishermen. Anglers should realize that good water quality is essential for the presence and survival of healthy sportfish populations in any freshwater system. Water must meet certain standards in order for fish and other organisms on which they depend to survive and maintain their populations. Water quality affects not only these organisms, but also can affect the aquatic vegetation communities and bottom sediments which are important components of their habitats.

Although it is the responsibility of other state and federal regulatory agencies to ensure that surface water quality standards are not violated, it is the responsibility of the Florida Game and Fresh Water Fish Commission to protect fish and wildlife from potential impacts of water pollution. The Commission's recommendations and management concerning freshwater systems must be based on sound technical information resulting from chemical and biological research. Since living things can survive only in a very narrow set of chemical, physical and biological conditions, we must determine and monitor the quality of our fresh waters in order to maintain healthy sportfish populations in Florida.

Degrading Water Quality and Sport Fisheries

Man has contributed significantly to the deterioration of Florida's waters. Municipalities discharge millions of gallons of treated sewage into our waters — sewage rich in nitrogen, phosphorus and other nutrients. Our waters have become convenient dumping sites for industries and wastewater treatment plants. Agriculture contributes to water-quality degradation through the pumping of water containing fertilizer and pesticides from pastures and crop lands. Developers fill in wetlands, paving, building and altering surrounding watersheds, eliminating the valuable filtration role these systems play in a complete ecosystem. The ability of the biological communities to store nutrients is often exceeded when man alters the system.

Stormwater runoff is one of the major water-quality problems facing our state today. Heavy rainfall washes nutrients and toxic chemicals from lawns and streets into our waters. The first inch of rain from a storm often contains very high levels of these harmful agents, contributing significantly to the decline of water quality and undesirable changes in sportfish populations.

Florida lakes that were once fed by waters filtered through areas of vegetation are now drainage basins for public roads and parking lots. Homeowners commonly fertilize their lawns, unaware that the same fertilizers that make their grass green will also cause the lakes to turn green by way of intense growth of microscopic algae. This environmental problem is common in many of our urban lakes.

Water-quality problems in our lakes are often the result of nutrient enrichment. This enrichment process, termed "eutrophication," often results in increased algae growth often referred to as "blooms." Bright green or turquoise algae decrease water clarity, which reduces sunlight penetration in the water column and decreases oxygen levels. Dense algae blooms are usually the first noticeable indication that eutrophication is occurring. These blooms can depress oxygen levels, resulting in the loss of natural fish foods, such as crawfish and immature insects, including dragonflies and mayflies. When clouds restrict the amount of sunlight, photosynthesis is slowed and low oxygen levels result.

Blooms also limit sunlight, which causes the death of certain species of desirable native submerged aquatic plants. As these plants decay, organic sediments accumulate on the lake bottom, resulting in the loss of both spawning and nursery areas for sportfish. This can lead to severely depressed sportfish reproduction.

While causing the death of beneficial plants, eutrophication can also contribute to the excessive growth of nuisance aquatic plants such as waterhyacinths. In addition, fish population composition can change as oxygen levels decrease and as habitats become degraded. Some fish can survive, and even thrive, on such conditions, but these are often undesirable species such as gizzard shad, gar and bowfin. Lake Apopka is an example of a water body where undesirable fish have become dominant.

Although eutrophication robs a water body of oxygen, resulting in a fish kill, other water-quality factors, such as the presence of pesticides, can have the same effect. Degraded water quality can leave sportfish severely stressed and susceptible to

diseases and parasites, resulting in fish kills. When this condition persists, the diminished reproductive capability of the surviving fish also harms their overall potential for survival.

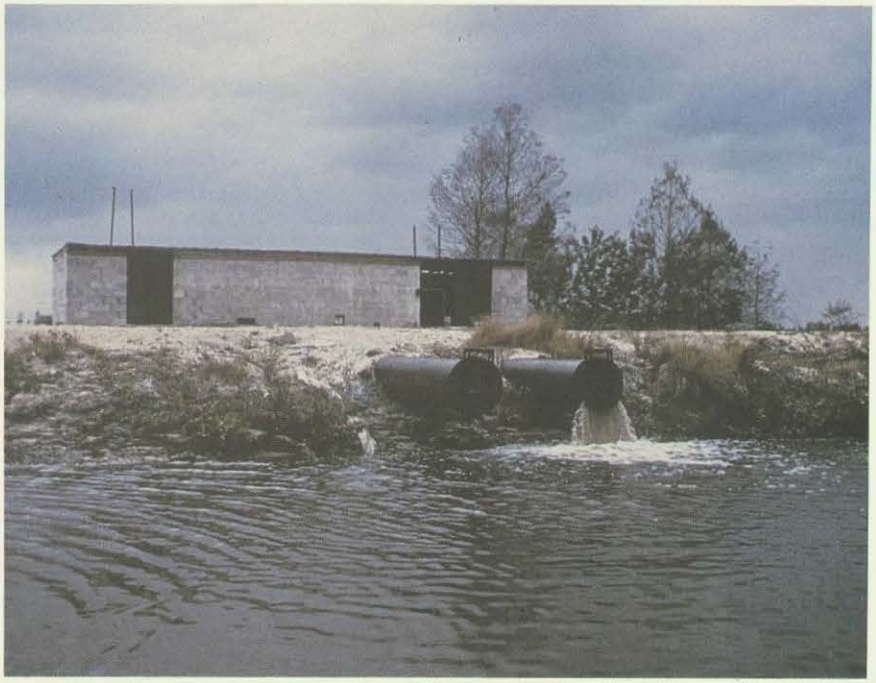
Sportfish populations have also been influenced by physical disturbances of watersheds. The large river systems of the St. Johns and lower Kissimmee have been altered by upland development. Canals have been dug, water-flow patterns altered and marshes drained. As a result, many tons of nutrient-rich wastes and high-salt, low-oxygenated waters have been diverted into these systems. Even in the relatively undeveloped Florida Panhandle, stream-system alterations to accommodate barge traffic and the impacts of industrial discharges have adversely affected water quality. The Apalachicola and Escambia rivers are two such systems. All of these factors have caused negative impacts on these systems' sportfish populations and consequently, declines in fishermen success.

What Can We Do?

As good stewards of our natural resources, each of us can do several things to preserve our waters. Maintaining a natural buffer of native vegetation in the water and near the water's edge and keeping fertilizers and pesticides away from these areas will help. By reducing paved areas or drainage ditches which allow runoff to enter the water directly and locating septic tanks at least 150 feet from the ordinary high water line, direct discharges to the system will be slowed. Allowing water bodies to fluctuate seasonally, rather than stabilizing the water level, provides better spawning areas and food for fish. If each person does his part, our waters will be cleaner and our fish populations healthier.

The future of recreational fishing is at stake. All anglers are encouraged to become better informed about the need for cleaner waters and good habitat. Our fishery resources, as well as our wildlife, depend on these absolutely essential qualities. If high standards controlling our aquatic environment cannot be maintained, sport fishermen have everything to lose.

Homer Royals is chief chemist for the Division of Fisheries at the Fisheries Research Laboratory in Eustis. Brad Cook is the limnologist with the Commission's lake restoration program and the SWIM coordinator.



Agricultural operations pump enriched water into surface waters. DAVID COX

Industrial operations pollute soil, air and water.

MICHAEL J. HILL

In Pursuit of Stormwater

By Georgann E. Penson

Stormwater is a primary pollution source for streams and lakes throughout the state, seriously impacting water quality, which has a detrimental effect on sport fishing.

Stormwater is referred to as non-point source pollution because its pollutants are not generated from one specific point. Non-point source pollution increases as areas become more developed and urbanized.

When it rains, stormwater flows over streets, yards, farmlands and parking lots. As water flows over these areas, it picks up soils, debris, fertilizers, pesticides, oils, gasoline, other chemicals and animal wastes, which are then carried into the nearest downhill surface water, such as a lake or river. Stormwater contaminants contribute to the degradation and poor water quality of many lakes, rivers, bays, bayous, and estuaries. They also may cause an acceleration of a lake's aging process whereby the lake becomes filled with sediments and plants.

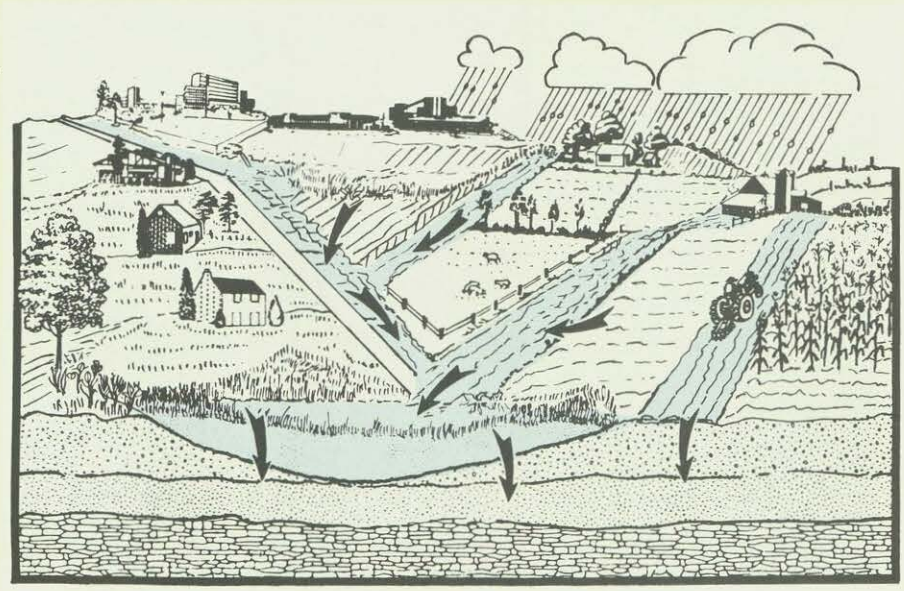
The Surface Water Improvement and Management (SWIM) Program was created in 1987 by the Florida Legislature to protect, preserve and restore the state's regionally significant surface waters. From the western half of Jefferson County to Escambia County, the SWIM Program is administered by the Northwest Florida Water Management District (NWFWMD) in conjunction with the Department of Environmental Regulation. The primary thrust of the SWIM Program is to initiate awareness of stormwater's impact on area surface waters, to prepare a plan for the control and abatement of stormwater pollution and to encourage local governmental action to implement these pollution-control programs.

A good example of how stormwater runoff can be controlled and treated prior to entering surface waters is the award-winning Lake Jackson/Megginnis Arm Stormwater Treatment Facility commissioned by the U.S. Environmental Protection Agency and completed by the NWFWMD as a special research project in 1983. The restoration and preservation of Lake Jackson is ranked as the third highest SWIM priority by NWFWMD. The facility consists of a heavy sediment retention pond, a sand-and-cloth filter, and an artificial marsh. The facility filters sediments and organic materials from the stormwater prior to releasing it into the Megginnis Arm portion of Lake Jackson. Through the SWIM Program, the Lake Jackson facility is being expanded to increase its stormwater detention and treatment capacity.

The NWFWMD is exploring the possibility of constructing similar stormwater treatment facilities elsewhere in Leon County. The District also is assessing the effects of stormwater throughout Tallahassee, Leon County and in the Pensacola Bay area in cooperation with both city and county governments. The quantity and quality of stormwater runoff is being monitored in these areas. After collecting data, scientists will evaluate the need for stormwater treatment facilities and additional pollution abatement techniques in other area watersheds.

Preventing pollution from stormwater runoff in watersheds throughout the state is one important step toward the preservation of surface waters and sport fishing areas.

Georgann E. Penson is a public information specialist with the Northwest Florida Water Management District.



Stormwater runoff collects pollutants from farmland, parking lots, yards, businesses and many other sources. These pollutants can harm our surface waters and may eventually make their way into our groundwater supplies. The complexities of stormwater runoff will be further covered in an upcoming issue of FLORIDA WILDLIFE.

Make 1990 "The Year Of Boating Safety"

WILLIAM A. GREER

By Mary M. Davis

The 1990s — the final decade of the 20th century. And if the Game and Fresh Water Fish Commission has its way, 1990 will be the year boaters obey safety laws and begin making the 1990s the safest decade yet on Florida's waterways.

Although Florida relinquished its unenviable title as the nation's leader in boating accidents and deaths in 1989, Commission officials aren't satisfied with the state's No. 2 position.

The Commission recently launched an enforcement and education program aimed specifically at Florida's estimated 700,000 recreational boaters in an effort to move the state even lower in the ratings.

"While most of Florida's boaters comply with the law, we're after maximum compliance. We're out to save lives," said Capt. Bob Poole, coordinator of the Commission's boating safety program.

"We've found that the average boat user doesn't consider himself a boater," Poole explained. "The boat is merely a tool to enjoy another sport, such as fishing, hunting, skiing or knee-boarding. We estimate 90 percent of Florida's boaters fall into this category."

The danger in this misconception is that some recreational boaters don't see the need for boating safety courses, personal flotation devices (PFDs) or much of the equipment required onboard for safety reasons, according to Lt. Mikel Suelter, assistant coordinator of the boating safety program.

"Formal safety inspections of vessels are our front-line weapon against boating deaths in 1990," Suelter said. "When wildlife officers check boaters for fishing licenses and bag limits, they will also conduct thorough inspections for all required safety equipment. Boaters without required equipment will be issued citations, just as they are when we find they are fishing without a license."

"We use the safety inspection to explain why the law requires certain equipment," Poole said. "It really is in the boater's best interest to have everything that's required.

"We also offer suggestions about non-required items that we encourage people to have onboard, such as a fresh water supply and spare parts for the motor. These things come in handy when your boat breaks down and you're stuck out in the hot sun for hours. And if you're stranded near land, waterproof matches to start a fire or to cook up those fish you've just caught come in handy," he said.

"We also point out to people that a PFD won't work if you're not wearing it," Poole added. "Most PFDs are designed to turn you face up in the water and keep you afloat. Accidents happen so quickly that it is highly unlikely you will be able to put on your preserver if an accident is about to happen, or to get to it after an accident. And if you've been knocked unconscious, there isn't a thing you can do. Our wildlife officers always wear their PFDs while on the water. We're trying to set a good example."

The Commission is placing officers and reservists at boat ramps and other locations to inspect boats for safety equipment, as well. Those boats which pass voluntary or formal inspection receive safe-boater decals to display.

Popularizing the float plan — an informational device developed to speed rescue efforts — is the second weapon in the Commission's safe boating campaign.

"If a family member or friend knows the information we include on our float plan, officers can carry out search and rescue operations sooner and with more precision," Poole said. "It is quite difficult to find a missing boat when no one knows where the people went or what the boat looks like. And sometimes the boat isn't missing at all — the boaters just stayed out ▷

longer without telling anyone."

"A float plan doesn't have to be a formal document," said Suelter. "Simply write down a complete description of your boat, where you are going, with whom, and when you will be back. If you're going on an extended trip, indicate when you will call in to say you're okay. Then leave it with a person who knows to take your plan to the authorities if you don't check in or come home on time."

Third in the campaign to decrease Florida's boating fatalities are public education publications, posters and public service announcements produced by the Florida Game and Fresh Water Fish Commission. *Florida Boater's Guide*, co-produced with the Florida Marine Patrol (FMP), contains detailed information about registering and equipping your boat, trailering, navigation and aquatic safety regulations. It is free from the Commission or FMP.

Boating safety posters are produced by the Commission for display in businesses and at boat ramps. They are free from the Commission, as well. Public service announcements offering boating safety tips are being distributed to television and radio stations throughout the state.

The Commission's ultimate weapon in the fight against unsafe boating practices is Green Thunder, a 24-foot state-of-the-art powerboat which attracts attention wherever it is taken.

"When we take Green Thunder to public events or even when we bring it in at a boat ramp, a big crowd gathers around the vessel. It's an impressive boat. This provides an opportunity for officers to discuss boating safety with people. We've contacted at least 468,000 people, or made what I call 468,000 'safety impressions,' since Jan. 1, 1990," Poole said.

Green Thunder became part of the boating safety program in 1989, when Commission Chairman William G. Bostick Jr. donated the powerboat to the Commission. In addition to appearances at state fairs and boat shows, Green Thunder cruises Florida's waterways on active duty. The boat is capable is pursuing speedboats and larger vessels, whose operators sometimes out-run the Commission's smaller boats.

According to Poole, 79 people died in boating accidents in Florida in 1989, a decrease from 1988 figures. Sixty-four of the 1989 deaths were among recreational boaters.

Of the 24 deaths investigated by the Commission, nine fatal accidents were due to collision with fixed objects or other boats, nine were due to capsized boats, five were due to falling overboard and one was due to excessive speed. Nineteen of the victims (79 percent) were not wearing life vests. Many fatal accident victims were impaired by alcohol.

Given the rate of boating deaths in 1990 — there were nine deaths in February alone — officials expect a year-end total well over 1989 figures.

"Too many people have died needlessly on Florida's waters. By using fishing license checks to inspect boaters for safety equipment and by increasing opportunities for voluntary inspections, we hope to make people more aware of their responsibilities as boaters. Our goal is to educate people and make them more aware of what can happen on the water and how to be prepared," Poole said.

For more information about boating safety, interested persons should contact their regional Commission office.

Mary M. Davis is an information specialist in the Commission's Tallahassee office. She writes feature stories and news releases, produces an agency newsletter, and specializes in providing law enforcement information to the news media and the general public.

Boating Safety Check List

Required Supplies:

- A Coast Guard approved personal flotation device (PFD) for each person on board. Each PFD must be properly sized and in good condition.
- A throwable device (required for boats 16 feet and over).
- An approved, fully charged fire extinguisher (not required on outboard motorboats less than 26 feet in length and not carrying passengers for hire, if the construction of such motorboats will not permit the entrapment of explosive or flammable gases or vapors and if fuel tanks are not permanently installed).
- Bell or whistle (vessels longer than 12 meters or 39.4 feet must carry a bell).

Suggested Supplies:

- Tool kit and spare parts.
- Navigation equipment and charts as needed.
- Shoes for each person.
- Fresh water supply.
- Waterproof matches (stored away from children and flammable materials).
- Paddles or oars.
- Anchor.

Operation:

- Fuel tanks full.
- Lights and horn working.
- Boat checked for leaks, bailed out and plug in.
- Weather and water conditions suitable.
- All gear and supplies properly stowed and secure.
- Motor in good operating conition.
- Propeller in good condition, lower unit free of weeds and debris.
- Passengers seated and briefed on emergency procedures. PFDs should be checked for fit.
- Operator alert, sober and ready.
- Float plan filed with a responsible person.

WILDLIFE RESERVISTS
Volunteers For Conservation

By Scott Ball

Has anybody ever told you "It's not the money, it's the principle of the thing?" You probably suspected that it really was the money that mattered. For two central Florida gentlemen, however, it **is** the principle that's important.

Lt. Harry Bertossa and Officer Jim Liatos each devote 30-40 hours per month to work with a variety of Florida Game and Fresh Water Fish Commission programs. Yet, they don't get paid; they are volunteers. They honestly can say it's not the money that matters.

Bertossa and Liatos are members of the Commission's Wildlife Reserve Program. The program operates under the supervision of the Commission's Division of Law Enforcement, but reservists work on a variety of Commission-related projects. One day they may be out on the water conducting a creel survey with a fisheries biologist. The next may find them in the woods, operating a check station at a wildlife management area. Those with special training work in law enforcement. Reservists also assist the Office of Informational Services, reaching the public with information about Florida's fish and wildlife resources.

The Wildlife Reserve Program began in 1968 as a pilot program in central Florida. The original group of reservists comprised 18 men — including Bertossa and Liatos. Since that time the program has grown to cover the entire state with 287 men and women, and Bertossa and Liatos are still among them. In fact, the two received plaques at a Commission meeting last November commemorating their 21 years of service.

Needless to say, they have seen a lot of changes in their 21 years with the Reserve.

"At first we started out as task force units, working in group-related activities," Liatos said. "We'd patch roofs and do other repairs at the youth camps or check stations. We didn't start working with wildlife officers until later. We had to complete the Police Standards training course before we were allowed to participate in law enforcement activities."

Bertossa remembers the comradeship that came from spending weekends together, camping out and working in the woods. "We worked under the wing of some great wildlife officers, most notably Roscoe Hamilton, Tom Croft and Wayne Rushing."

Before the Commission established its nuisance alligator control program, reservists handled hundreds of gators that had found their way into parking lots, golf courses or back yards. In those days,

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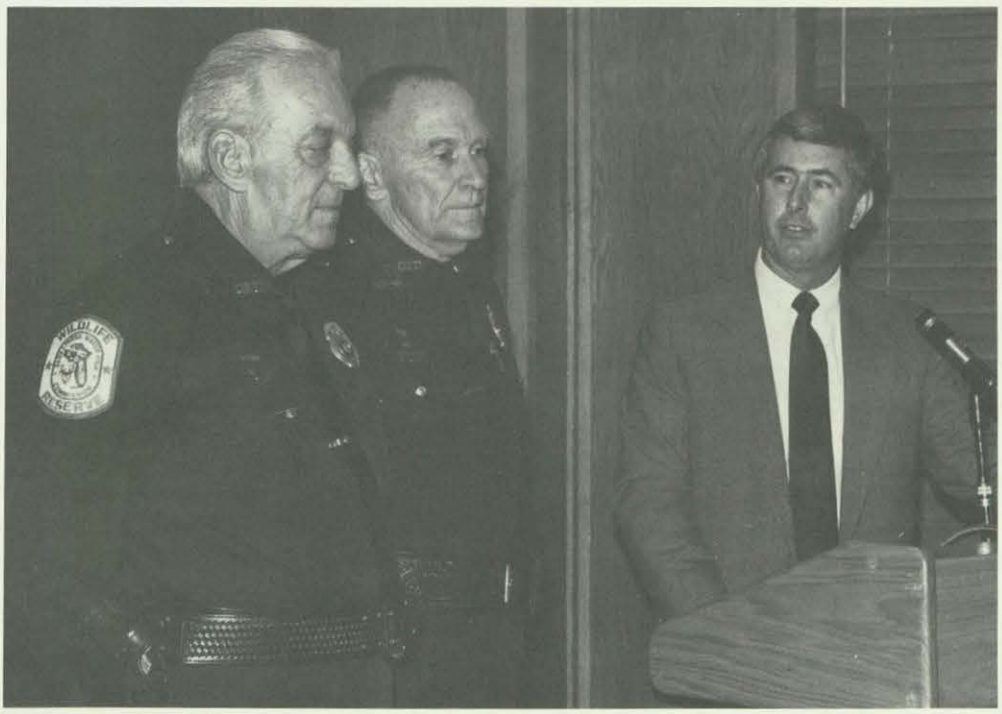


WILLIAM A. GREER

Col. Bob Edwards (R) introduces Reserve Officer Jim Liatos (L) and Lt. Harry Bertossa.

they would capture and relocate them to remote areas.

"I remember one particularly busy summer when we moved 49 nuisance alligators," Bertossa said.

"We still get occasional calls to take care of smaller nuisance gators," Liatos added. "But I miss the excitement of handling the big ones."

The Wildlife Reserve Program went statewide in 1980 under the supervision of 1st Lt. Chuck Gaylord. Lieutenants in the Division of Law Enforcement oversee reserve operations in each of the Commission's five regions. Would-be reservists must be at least 18 years old and go through a thorough screening process before they are accepted into the program.

Reservists have proved invaluable in helping wildlife officers solve cases. In one instance, reservists and officers were working in shifts on a north Florida lake: reservists were on duty in the morning, officers in the afternoon. Several unscrupulous duck hunters thought they were outwitting officers by shooting their limits in the morning, taking them home and coming back in the afternoon to shoot more ducks. But reservists spoiled their scheme by checking their bags in the morning and passing the information to the officers working that afternoon.

On Bay County's Deer Point Lake, a quick-thinking reservist saved a boater and his vessel. The reservist was conducting boating safety inspections when a boat he had just checked caught fire — the operator had flooded the engine. The reservist grabbed the fire extinguisher from his vehicle and quickly put out the fire, saving it from serious damage and its operator from injury or death.

As the Commission's role in wildlife law enforcement has changed, the Wildlife Reserve has kept pace. For example, the increasing use of pleasure boats on Florida waterways has created an extra demand on officers' time. But thanks to the assistance of reservists in the Commission's boating safety enforcement program, officers are free either to cover more territory or work other duties. They also work with the Commission's new environmental law enforcement teams. Currently, more than 180 reservists are trained to work with the Division of Law Enforcement.

For the Division of Wildlife, reservists work with the Florida Buck Registry. They measure deer racks according to the Boone & Crockett system and supply the data to the division. The information tells biologists which areas and habitats produce bucks with trophy antlers. Reservists also gather important harvest data at check stations and help conduct track counts to determine deer populations.

Reservists help Northwest Region fisheries biologists conduct the annual white bass tournament at Chattahoochee. The tournament provides brood stock for the Division of Fisheries' sunshine bass program. Reservists work at Tenoroc State Reserve in Polk County, the urban fishing program in Jacksonville and conduct creel surveys all across the state.

The Office of Informational Services also reaps the benefits of the Reserve program. Reservists devote many hours teaching hunter education classes, manning fair exhibits or speaking to school groups, civic clubs and other organizations.

In order to maintain their active status, reservists must work at least 12 hours with the program each month and attend monthly training sessions. Some members, like Bertossa and Liatos, go above and beyond what is required of them, putting in roughly 300-400 hours annually. Multiply this by 21 years and you get an idea of how valuable reservists are to the Commission. Last fiscal year reservists worked a total of 51,439 hours, the equivalent of 24.7 full-time employees.

To be able to volunteer so much time, you'd think a reservist would have to be either retired or independently wealthy. Liatos' 21 active years (so far) as a reservist came before his recent retirement from Lockheed in Melbourne. Bertossa has worked for 32 years with an Orlando engineering firm. Each is married and has reared children. Other reservists are retired like Liatos, but most are active in their careers.

"The Reserve program is like a small agency within an agency," Gaylord said. "Reservists work with all divisions of the Commission. The only difference is they don't get paid for their work."

Not only do they work for free, reservists pay for their uniforms, guns and travel expenses. If they take the Police Standards course, that cost also comes out of their pockets. The only items the Commission furnishes are the brass for their uniforms.

"In my first year with the program I invested about $1,700 for my uniform, boots, guns, transportation and camping costs," Liatos said. "Thank goodness for tax deductions."

Since there's no pay involved, why do these men and women devote so much time to the Reserve program? Most any reservist will likely give an answer similar to Liatos'.

"I get a tremendous sense of personal satisfaction out of it," he said. "I've seen so much taken away from the world of conservation through the years. This is my chance to pay my share, to put something back.

"Back when Harry and I first came on board," he added, "most hunters who were sportsmen could see obvious violations of hunting laws taking place. But the Commission was short-staffed for law enforcement, and joining the Reserve program was one way we could help."

For Liatos, Bertossa and all the other reservists, it really is the "principle of the thing."

Editor's Note: For more information on the Wildlife Reserve Program, contact the nearest regional office of the Commission listed on page 48.

Scott Ball is FLORIDA WILDLIFE's assistant editor.

It's The Law

By Inspector Kyle Hill

Question: I've heard a lot about the increase in boating fatalities lately. How can I best safeguard my family on a boating trip?

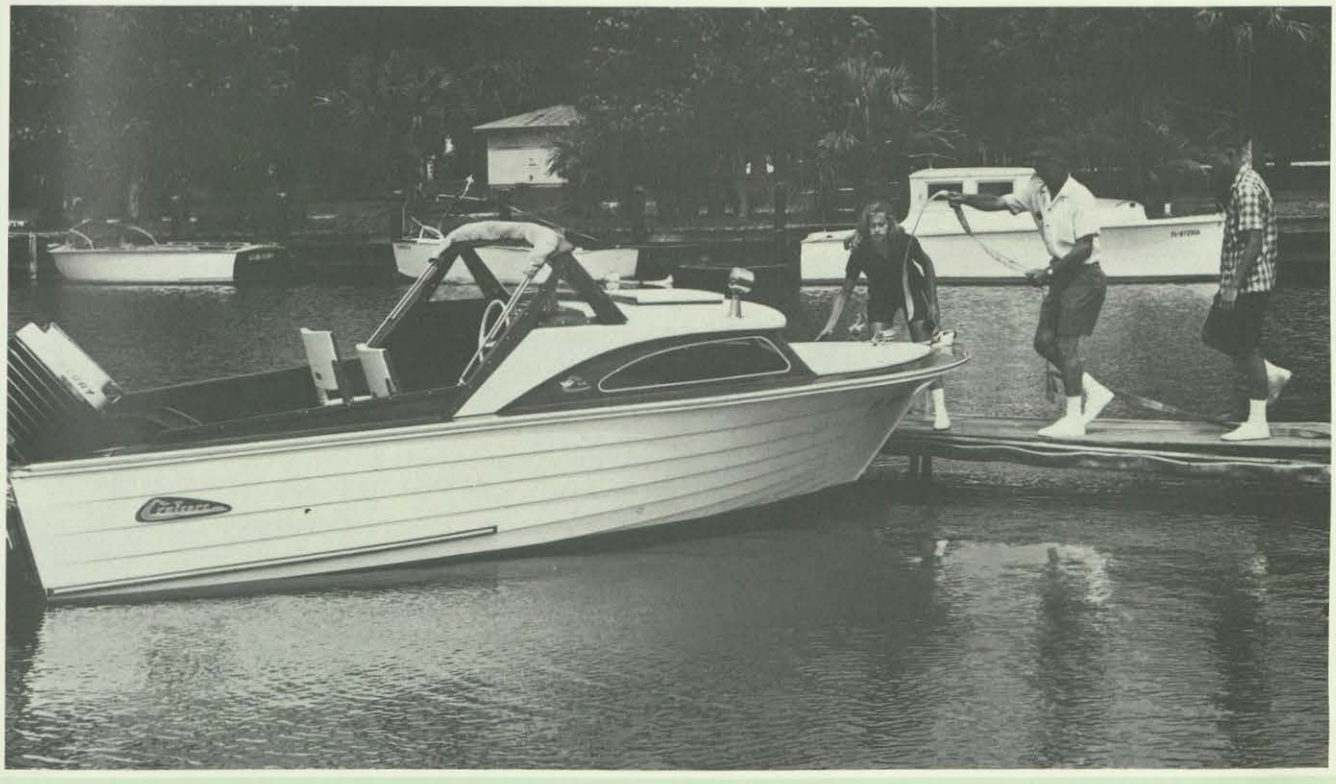
Answer: The Commission stresses that you should refrain from drinking alcoholic beverages, make sure that your boat contains all required boating safety equipment, and ensure that everyone on board wears a PFD (personal flotation device) *at all times*. Florida's statistics show that 79 percent of boating-fatality victims were not wearing a PFD at the time of the accident.

What good are life jackets if they are not readily accessible? You have to *wear* a properly fitted PFD in order to save your life.

Many boaters mistakenly believe that if they can swim, they don't need a PFD. But one never knows when an accident will occur. Drowning is the number one cause of death in boating accidents, yet many victims knew how to swim! The problem is they were *unable* to swim, due to the circumstances of the accident. Either they were knocked unconscious, became disoriented, or were injured and unable to remain afloat. When a boat traveling at a high rate of speed strikes an underwater object, the occupants frequently go airborne. Hitting the water head first at high speed is like hitting concrete — unconsciousness usually results. Also, often when serious collisions occur, there is no one left on board to toss a "throwable device." So, if occupants are not wearing their PFDs, there is no one to help them get back to the boat.

The next time a wildlife officer checks you from the water, notice that he or she will be wearing a PFD. Wildlife officers wear these at all times while on the water. This policy has saved the lives of several officers.

For a full description of the types of floatation devices available, call or write the nearest Commission office to obtain a free copy of the "Florida Boater's Guide." This guide provides complete information on safe boating that everyone should know. Not all PFDs will turn an unconscious wearer face-up in the water. Will yours?



FLORIDA STATE NEWS BUREAU

By Andrea Blount and Scott Ball

Recycling Makes Every Day Earth Day

Floridians generate nearly 13½ million tons of waste a year! Americans produce enough garbage to fill 26,000 football fields 10 feet deep every year. It's estimated that each person contributes over 6 *pounds per day*. With the 20th anniversary of Earth Day fresh in our memories, it's time to make or renew our recycling efforts. Recycling saves energy and reduces the amount of environmental damage caused by landfills.

Can You Make a Difference?

Yes! The energy saved by recycling one glass bottle can operate a TV for three hours. Each soda can recycled saves six ounces of gasoline — enough energy to make a new can. In 1988 enough energy was saved by recycling aluminum cans to supply electricity for 200,000 homes for a full year. If every household in America switched to the most energy-efficient refrigerators available, we'd eliminate the need for about 12 power plants.

A quarter of the packaging now clogging Florida's landfills and 60 percent of beach litter could be eliminated through an effective plastics recycling program, according to a recent study by the University of Florida.

Florida's land fills are filling up rapidly and some will be forced to close within the next few years. By recycling and compacting our household garbage and office trash, we can make a difference. Set up a home/office recycling center to make it easier to separate what can go to your city/county plant.

Whenever possible, repair, sell or donate used appliances, which may contain recyclable parts and materials. Look for efficiency tags when replacing worn-out appliances.

Learn the difference between renewable and nonrenewable materials and be especially aware of our use of nonrenewable resources. Twenty recycled aluminum cans can be made using the same energy it takes to produce one new one from bauxite, a nonrenewable resource.

What Can You Recycle?

Plastic: plastic soft drink bottles, water and milk jugs are recyclable.

Aluminum: cans, foil, pie pans, TV dinner trays and lawn furniture can be recycled.

Tin-plated steel cans: food cans with side seams.

Glass: glass containers can be made into new bottles and jars. Some recycling centers request that you rinse, remove labels and caps, and separate by color.

High-grade paper: most office paperwork can be recycled. Some centers do not accept ditto, mimeo, or FAX papers.

Newspapers: newspapers can be recycled into newsprint, insulation and cereal boxes. Do not include telephone books, magazines and other slick, coated paper.

Organic wastes: grass clippings, leaves and some kitchen garbage can easily be composted in your yard. Not only does it produce an enriched soil, but also it keeps plastic bags from filling up landfills.

EARTH DAY
EVERY DAY.

FOR MORE CONSERVATION TIPS AND INFORMATION, WRITE FOR NWF'S CITIZEN ACTION GUIDE, NATIONAL WILDLIFE FEDERATION, EARTH DAY PROGRAMS, 1400 16TH STREET NW, WASHINGTON, DC 20036-2266

Upcoming Recycling Legislation

Upcoming recycling laws will require large plastic bottles and packages to show a molded label identifying the type of resin used. By Oct. 1, 1990 plastic foam made with chloroflurocarbons will be banned. Jan. 1, 1991 all plastic grocery bags will be banned unless degradable within 120 days. As the law reads now, by Jan. 1, 1992, all plastic foam and plastic-coated paper will be banned unless degradable within 12 months (subject to FDA approval). By 1994 we must recycle 30 percent of all trash.

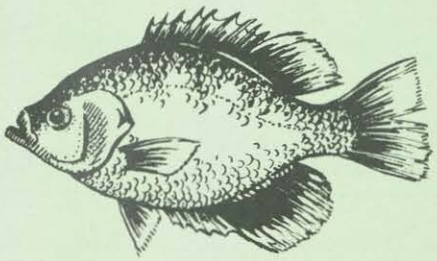
Contact your local solid waste department or recycling center to learn whether your city/county has curb-side pickup or recycling drop-off centers. For more information, call the Florida Business & Industry Recycling Program at 1-800-FLA-BIRP. For additional conservation tips, write for the Citizen Action Guide, National Wildlife Federation, Earth Day Programs, 1400 16th Street NW, Washington, D.C. 20036-2266.

When Frogs Go A 'Courtin'

The overall size of a male frog may attract the females, but having large front legs may literally ensure his success at holding a mate. So says University of Miami professor Julian Lee.

Lee said mate selection among frogs can include elements of both female choice and competition between males. Sometimes, when males vocalize to make their presence known, the females will select the male with the deepest voice, which usually corresponds with larger body size. But when males compete directly for a female's affection, the male with the largest forelegs is most likely to hold its grip on the female of choice.

Lee studied five species of frogs in which males try to displace each other from the backs of females during breeding. In four out of five instances, the successful males had longer forelimbs than the less successful males regardless of body size.



Fishy Folk Lore

We recently tried to determine how the round sunfish (*Centrarchus macropterus*) got its common name of "flier." It's also dubbed long-finned sunfish, many-spined sunfish, flying perch, 'coon bream, millpond perch, large-finned bass, round bass and sac-a-lait.

It's easy to see how some of these nom de plumes came to be. But, unable to find a definitive reason for "flier," retired Commission biologist Vernon Ogilvie came up with his version of how the fish got its name:

"In the early days of fishing in the lowland streams and ponds of the southeastern portion of the colonies, hooks were much cruder, larger and duller than those of today. Fishing poles consisted mostly of cut saplings or cane, and lines were heavy twine. Often as not, when a flier took the bait, the fisherman really hauled back on his heavy pole and the small sunfish went flying through the air. Since this little sunfish seldom gets bigger than inches in length, it remained a 'flier' all its days.

"If you make up a story that is put into print, it then becomes true and will out-live its fabricator by centuries."

So said.... Vernon Ogilvie

Fisheries Declining, AFS Says

Because of declining habitat conditions in North American lakes, rivers and stream systems, 62 species of fish now qualify for endangered status and another 84 are threatened, according to the American Fisheries Society (AFS).

The report said the number of fish species warranting special attention in the U.S., Canada and Mexico rose 45 percent in one decade: from 251 in 1979 to 364 in 1989. It added that 40 species have become extinct as a result of expanding human pressure on aquatic resources.

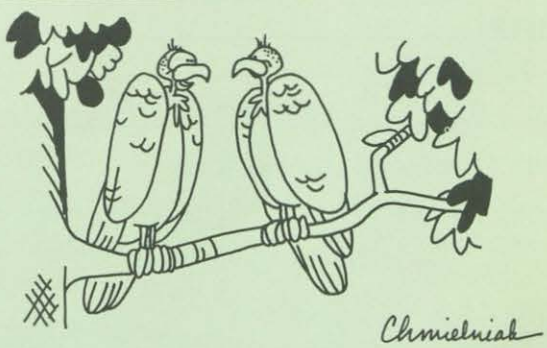
In Florida, habitat conditions and prospects remain poor for the endangered blackmouth shiner. On the other hand, the outlook is brighter for the threatened crystal darter, thanks to reduced pollution of the Escambia River.

Give Us Your Best Shot

The deadline for the seventh annual *FLORIDA WILDLIFE* photography contest is June 29, 1990. The competition focuses on four wildlife and natural resource categories: wild birds, wild mammals, wild animals other than birds and mammals, and Florida's natural environment. You may submit up to three slides in any or all of the four categories.

Only original 35 mm slides or 2¼ x 2¼ color transparencies are eligible. Composite slides are not eligible. Entries must be taken in Florida and must be accompanied by an official entry form.

Additional rules and the entry form appeared in our March-April issue. Photocopies of the form are acceptable, or call (904) 488-5563 to request that a copy be mailed to you.



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Floridana

The yellow-crowned night heron is one of the most exquisite birds to be found. Quite appropriately, its Latin name is translated as "violet night queen," and a sighting of the bird is a special prize on any outdoor excursion.

Yellow-crowned night herons are a medium-sized heron, about 2-2½ feet tall, but look smaller because of their tendency to droop their shoulders and "hunch" their backs. The plumage of adults is dominated by a violet-tinged gray that extends over most of the bird. A striking black line runs prominently through the eyes and over the head and sets off the bird's white cheeks and yellow-orange forehead patch. When viewed at close range, the orange-red eye looks like a brilliant, well-rounded gem.

Many Florida herons have long, slender bills, which are used to poke and skewer prey. In contrast, a noticeable feature of the yellow-crowned night heron is its shorter, thicker bill. Most of a yellow-crowned's diet consists of crabs and crayfish, and its stout bill helps to hold and manipulate these hard-covered delicacies, as well as larger prey items.

Yellow-crowned night herons tend to forage at night more than other herons, but they also do a good bit of daytime foraging as well. Try watching for their hunched-over silhouettes lurking about bays and estuaries during low tide on a moonlit night.

Yellow-crowneds are also less gregarious than other herons and generally form flocks of a dozen birds.

Yellow-crowneds nest (and roost) high in trees, usually 20-40 feet above the ground. The nest is a frail assemblage of sticks lined with softer materials, and a clutch usually consists of four greenish-blue eggs. In northern Florida, they like to nest in small colonies tucked away along forested swamps and creeks. In south and central Florida, they can sometimes be found in urban parks that contain a healthy number of live oaks and pines. A colony in a Tampa city park attracted attention for several years and helped to provide a little "wildlife relief" in this otherwise depauperate urbanized setting.

They appear to be monogamous, and they exhibit a number of ritualized behaviors to encourage and maintain the pair-bond. Birds greet one another at the nest with raised crests and calls (a decidedly unceremonious "*kwok*"). They clap their bills and occasionally lightly slap their bills together. Territorial display consists of a circling flight above the nesting area.

The status of yellow-crowned night herons in Florida has not been fully determined, but they are thought to be declining.

Coastal mangrove habitats, critical foraging areas for many south Florida populations, are disappearing. Their swampy retreats along rivers and sloughs in north Florida are rapidly being encroached upon by residential and commercial development. Without protecting adequate amounts of foraging habitat, there are chances that this somewhat mystical species will become an increasingly rare feature of the great Florida outdoors.

— Jim Cox